APR 20 1928

THE GEOGRAPHICAL JOURNAL

Vol. LXXI No. 4 April 1928

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DAVID GEORGE HOGARTH

C.M.G., F.B.A., LITT.D.

1862–1927

UNIV OF MICH.

The
GEOGRAPHICAL JOURNAL

Vol LXXI No 4 R.G.S. *April 1928*

DAVID GEORGE HOGARTH

PRESIDENT R.G.S. 1925–27

A MEMOIR BY C. R. L. FLETCHER

IN the first chapter of *Accidents of an Antiquary's Life* (1909) are a few words of an autobiographical character, and in them the key to the writer's own life is laid before us. An antiquary, he says, may be "made" out of any man whose boyish education has given him, willy nilly, some knowledge of the elder world. It was a mere accident that William Ramsay needed an apprentice just when David Hogarth had got his Craven Fellowship; and the latter was told to go and learn something of his trade (epigraphy) at Athens before joining his master at Smyrna. After two months of boredom this naughty apprentice "escaped" to Macedonia. He was not at the time aware of the fact, but that escape had taken him at one stride into his true vocation, that of *A Wandering Scholar in the Levant*, who could, as he said in his last public speech as President of the R.G.S., look forward to "spending quite a respectable proportion of Eternity in talking to Herodotus."

He wanted to get on the track of Philip and Alexander, the only serious subject to which he had been drawn in his undergraduate days; he began now to "feel the explorer's itch," and wished to see with his own eyes "whether anything was left of Ægæ and Pella."

> "It is a virgin field," he wrote to his sister [13 May 1887] after he had joined Ramsay; "I got 28 unpublished inscriptions at Salonica and sent them to Pelham; perhaps he will publish them in the *Journal of Hellenic Studies*. . . . We are now off to Phrygia; I shall keep my eyes open for things Macedonian, for Alexander marched through the heart of the country from Apamea to Gordium."

In beautiful words he acknowledges in *Accidents* that he " owed all to Ramsay " ; yet even his third Eastern journey (his second with that great Master) in 1890 had not yet " made " him an antiquary :

> " I did what my Master wished of me ; but my interest was in matters outside his work ; in the incidents of the camp, in the means of travel, in the wildness of nature and man about us . . ., in the old boar whom I flushed one morning and blessed that he did not charge " [*Accidents*, p. 15].

When he says [*ibid.*, p. 19] that it was in Egypt that he " learned to dig and to manage the men who dig for you," he is not forgetting that in the early days of 1888 he had taken part in some excavations in Cyprus, but this was with colleagues of experience scarcely less slender than his own. He there opened, independently, only one small site, and what he really learned in Cyprus was how to travel and explore, and how to conciliate Greek and Turk alike. For after his companions had gone home he was left alone, with a single Greek guide * from the end of May till August (1888). Four letters to the same sister from that island are before me, full of racy descriptions of his experiences, and of scathing comments on the ridiculous introduction of the " British Constitution " to a population of

> " wretched Greeks and Arabs in the towns and wild Turkish or aboriginal agriculturalists in the country, who are 500 years behind us and for whom feudal rule alone is fitting. . . . Every villager wishes the Turks back again ; only one of our officials can speak either Greek or Turkish " (though Hogarth himself had picked up the odd local dialect of Greek with ease in five months) ; " as we have abolished slavery and forced labour on roads and irrigation, there are neither roads nor harbours being made. A legislative council, mostly Greek, has thrown out a much-needed bill against cruelty to animals . . . ; open sedition is preached by the free press in all the big towns," and " half the small revenue raised is paid to English and French holders of Turkish bonds."

Hogarth was never *simpatico* to governments, officials, or politicians, and, for one who professed the creed of " Liberalism," his contempt for democracy, as expressed in his letters, is distinctly strong, and is by no means confined to the absurdity of introducing it among backward peoples. When in the early days of 1919 he was being pressed to stand for the Burgess-ship of the University in Parliament, he did not take to the idea at all kindly ; and this was largely because of his contempt for the party system, for canvassing, and for votes. He was " being pressed by the Near East Group in the House to stand, especially now that Mark Sykes (rest his soul !) is gone," and it was probably this

* The devotion felt for him by Gregori Antoniou is typical. Gregori had become foreman during the excavation of Paphos in 1888, travelled with Hogarth in Cyprus, in Crete, and on the Euphrates ; and thereafter kept up a life-long correspondence with his old master ; there is, indeed, still a regular Hogarth-saga in Cyprus, which doubtless owes its inception to Gregori. The Committee of the Cyprus Museum sent to the Visitors of the Ashmolean a letter of real feeling on the receipt of the news of his death.

pressure that made him accept the nomination. But "the Party" at Oxford finally thought better of it; and, when it was all over, he told his wife he was glad.

And I think it was for a corresponding reason, his experience of "officials" and of the way in which they were cramped and obliged to cramp others, that the idea of any high official post in the Near East after the war did not appeal to him.

> "As to jobs in this part of the world" (which had also been suggested—he was writing from Cairo), "should I really like any permanent form of exile at my age? No. Perhaps I have got a little old and lost some of my 'will to power,' but, anyhow, I have not much stomach for a permanent divorce from the world of art, letters and science." "What rot," he writes in the same month [Jan. 1919] to a sister apropos of his possible candidature for Parliament, "these labels are! What have 'Conservative' and 'Liberal' got to do with the world-chaos at the present moment? You want all the big brains, the broad views, the cosmopolitan knowledge the country can produce, and it will not be sufficient then. But perhaps these sort of men are better outside the House than in it. I'd have voted Coalition had I been at home simply because the world-problem is the only one that matters for the moment."

It is a far cry from the storm and stress of 1919 back to "Melantha and its god Opaon, both previously unknown," which he had helped to unearth in Cyprus forty years before. It is, I believe, from Hogarth's books that we can best estimate his services to geography, his passion for knowledge, and his boundless curiosity. And so it is with relief that I take up *Devia Cypria*, his first book, descriptive of his second Eastern journey, of which he says in *Accidents* [p. 11] that "the title has deceived more than once, I am told, sanguine buyers of *Erotica*." Not only does this young man of twenty-seven, until that time reputed to be no glutton at hard work, astonish us by the wealth of his past reading, but he already displays all the sure marks of the born explorer, of the lucid rationalist, of the easy, humorous, descriptive writer; and he evidently had a "way with him" of persuading the villagers to serve his turn with a good will.* The most interesting of his journeys in the island was that into the Carpass, that strange north-eastern spur where hardly one serious archæologist had been before him. His job was now more the identification of ancient sites than actual digging; his caution

* On reading this, Professor Myres, to whose kind assistance these pages owe everything, told me that the lines in Hesiod came to his mind:

> Ὄντινα τιμήσουσι Διὸς κοῦραι μεγάλοιο
> . . . . . .
> Τῷ μὲν ἐπὶ γλώσσῃ γλυκερὴν χείουσιν ἐέρσην
> Τοῦ δ' ἔπε' ἐκ στόματος ῥεῖ μείλιχα· οἱ δέ νυ λαοὶ
> Πάντες ἐς αὐτὸν ὁρῶσι, διακρίνοντα θέμιστας
> Ἰθείῃσι δίκῃσιν· ὁ δ', ἀσφαλέως ἀγορεύων,
> Αἶψά τε καὶ μέγα νεῖκος ἐπισταμένως κατέπαυσε.
>
> Theogony, 81 *sqq.*

and unwillingness to assume archaic origins are great, but he does not shrink from such bold conjectures as that of the true site of the Temple at Old Paphos [p. 62], nor that of the probable locality of Aphrodisium [94 *sqq.*]. Here, as so often in his later books, *non omne ignotum pro Pœno;* I shall recur to this point again, but it is interesting to see how early he had excluded possible Phœnician influence on Greek art. Also, all his guesses are on the side of common sense; mysterious stone "emblems of fertility" are very apt to seem to him posts of an old oil-press; a sacred τέμενος may, after all, be merely an abandoned sheep-fank. Specialists did not like this cold light any more than they liked his later attitude [*Authority and Archæology*, p. 242] towards their hut-urns in Melos and Amorgos, in which they saw parallels to the Swiss lake-dwellings. "Pile dwellings in the arid Cyclades!" sniffs he; "they are only foundation walls carried down to the rock."

No one could describe beautiful scenery better, or desolation, or the romance of such a cave as that of Elisis [pp. 72–7], such a castle as Kantara, whose date and builders are unknown [101–2]. Who could roast with more delicate irony a pretentious impostor to his trade [19, etc.]! How rich is the humour of that Bishop's steward (with whom he breakfasted) "who drank to Aphrodite not without some hope of succeeding to his master's See"! He is not afraid to pull up Bishop Stubbs (in 1888 at the height of his fame as a mediævalist) for wrongly finding fault with Roger of Hoveden [81]. Nay, daring as the son of Tydeus, he will even throw a bomb at the Goddess of the Island herself—to what Heaven-born archæologist has she fled to complain of this insolent mortal?—"for we should not too hastily assume that Aphrodite was the only, or the earliest, *regina Cnidi Paphique;* there is something to be said for both her great rivals" [58, etc.]. Anyhow "the Cult of Woman has always been dominant on the Island" [*Wandering Scholar*, p. 79].

If I have dealt at too great length with *Devia Cypria* it is only because it contains all the promise of all the charm of his later work, which most people know only from the *Wandering Scholar*. The mastery of English prose is there also, and perhaps Mrs. Courtney is right [*Fortnightly Review*, January 1928] when she indicates that, in his later books, he pruned too severely and attained the "meticulous precision of a chiselled style"; certainly he sometimes packed words so tightly that he was in danger of becoming elliptic; and he and I nearly quarrelled over the compression of his life of Lord Cromer in the recent volume of the D.N.B.

To attempt to pick out plums from the *Wandering Scholar*, which was his next published book (1896), seems ridiculous, for it is on the shelves of all lovers of good literature; but it is characteristic of its author that you will find in it, almost more than in the more outwardly serious books (side by side with such delightful adventures as that of the Light of the Pasha's harem struggling in the grip of the Scotch mate lest

she should fling herself into the sea), the subtle contrast between Greek art and Egyptian gloom, for the former is

> "the most perfect expression of a race that abhorred the Beyond, conceiving gods that were not incomprehensible and ideals that were of this world, finite . . . ; the mind of the majority of mankind, on the other hand, is drawn powerfully towards the half-known, the unknown, and even the not-to-be-known, craving the stimulus of infinite possibilities behind a half-drawn veil" [153].

Egypt is the land for them, the land of mystery. He cannot explain the fascination of Egypt (and he rather disliked what he could not explain) and yet partially admits it. But "don't call its works 'art,' and don't call its history great, or take its kings at their own extravagant valuation"; and then he breaks out, "Shades of the monarchs of Nineveh and Babylon who raided the Kheta year by year for a summer diversion! and, yet more, ye shades of the Emperors of Rome who held fifty Egypts in the hollow of your hand!" [169].

His experience of digging in that country was indeed considerable; it began under the guidance of Edouard Naville at Deir el Bahri in 1894, was continued at Alexandria in 1895, in the Fayum, with Messrs. Grenfell and Hunt to help him, in 1896, at Naucratis in 1899 and 1903, and ended at Asyut in 1907.

> "It was the best result," says he [*Accidents*, p. 19], "of my Egyptian years that two Oxford scholars who searched with me for papyrus-scraps in the Fayum were encouraged thereafter to embark on a course which led them to European fame."

The other positive results of these years were not very important; at Deir el Bahri Hogarth was still a subordinate learning his trade; Alexandria, to his great disappointment, was found to be waterlogged, and Naucratis was a forlorn hope. But for himself the experience was significant; even from the first Egyptian excavation he came back with his mind made up about the civilization and art of the country; they were to be no concern of his. It was in Egypt however that he first had to handle large bodies of workmen, to think and to speak colloquial Arabic, and to improve in more than one way on the methods of his predecessors.

To return to the *Wandering Scholar*: it is in that book also that he first displays his steady affection for the Anatolian peasant "Turk," who, after all, is more probably of far earlier race—Carian, Galatian, Phrygian, or what not—in the east of the peninsula perhaps a converted Armenian. For "Islam does unite, and keep united, the most heterogeneous elements"; and the most truly "Turkish" of these is probably the *yuruk*, or wanderer, who is slowly settling down on the edge of cultivation, and who still retains the habit of going to a summer *yaila* in the hills. Such is the Kurd, and "it is the Ishmael-like Kurd who occasionally bullies the Christian Armenian, and, again, occasionally

combines with him to resist the Ottoman Government" [79, 129, etc.]. Hogarth's prophecy that the Turk will never fight again as he fought at Plevna [100], and must go back out of Europe, may seem to have been falsified by the story of the Great War, but who can say that our fragile re-arrangements of the Near East are likely to survive long? Miss Bell was of opinion that there "has seldom been such a series of hopeless tangles as the West has made about the East since the Armistice" [*Letters of G. Bell*, II, 489, 1 Feb. 1920]. Hogarth by no means underrated the resisting power of the very numerous *enclaves* of Greek Christianity which are to be found in the Near East, and he had much to say of the vigour and devotion of the American missionaries in the Taurus; he was taken in in 1890 and nursed by one of them, an old soldier of Sherman's army, after a bad accident to his foot:

> "if ever the Armenians get freedom," he writes to his sister [22 July 1890], "they will have to thank these missionaries for fitting them for it; these fellows here are the remains of the mediæval kingdom of Lesser Armenia, dear to Bishop Stubbs; a fine intelligent race, but worn out by centuries of slavery. The finest are the Zeitunlis, but they are dreadful scoundrels; evidently they hope for something from the English, and perhaps they have as much claim as the Greeks, or more, to the attention of Europe." But in *Accidents* [1909, p. 25] he says, "it is an unvaried law in Levantine history that where" (in the clash of religions) "the Moslem has prevailed, the votaries of the two creeds have resumed peaceful life as of old, the Christian knowing that the Moslem act under orders and as one man, and when Islam is triumphant its Gibeonites are secure of their lives. But if the Christians gain their freedom the Moslem leaves the land of his birth; for, whatever pledges the new authorities give, he knows, for his part, that, since Eastern Christianity supplies no social discipline, each Christian will act on occasion as seems best in his own eyes."

If he considered, as he did, that the real Allah of the early days of Islam played but a small part in the religious life of the Moslem inhabitants of Asia Minor, so also "the Panaghia, who enjoys universal authority in all this Christian region" (the coast of Caria and Lycia), "has inherited it from the one great Nature-Goddess who was worshipped under so many names, Leto and Artemis, Kybele and Mylitta, Baalit and Ashtoreth, and others still earlier" [*Accidents*, 113].

Hogarth may be said to have written only two "historical books": *Philip and Alexander of Macedon: Two Essays in Biography*, 1897, when he was thirty-five, and the little sketch called *Arabia*, in 1921. In the former he has gone straight to the original authorities, and, while admitting how scanty and unsatisfactory these are for Philip, he has never hesitated to draw bold deductions from them. He felt badly the want of archæological exploration of Macedonia itself, "of whose early conditions we know far less than of far remoter parts of the classic East" [*Philip*, p. 15]. Many years later, at the Anniversary Dinner of the

R.G.S., 1 June 1920, he had to propose the toast of the Medallists, one of them being Dr. Cvijić, of Belgrade,

> " who has applied himself to the fascinating but perilous problems of Balkan Geography. I use the word ' perilous ' advisedly," said he, " for all investigation must be perilous in a land where nations are always in the making and racial passions run red-hot ; where not long ago a peasant in the course of a single week might be offered the choice of three separate martyrdoms on behalf of three separate nationalities, and a certain reversion of two out of three possible hells." *

In *Philip* he compares very aptly that tyrant's welding of his tribesmen into a nation with that of Bismarck's methods of welding Germany by aggressive wars [49–50]. He defends, and very ably, the resistance of Athens to the master of her fate ; and defends, against recent criticism, Demosthenes and his party for stimulating that resistance not only by words but by deeds [101–2]. But he has no illusions on the subject of Athenian democracy or on the unfitness of democracy for Imperial rule : " the Second Empire of Athens was a sham which hardly needed a Philip to break it up " [149]. The last fifty or sixty pages of *Philip* are the best part of the book, and the most original ; and it is an appalling figure of craft and cruelty that Hogarth draws.†

The achievements of Alexander, as his character, are, no doubt, to modern eyes, more " impossible " than those of his father, but Hogarth has rendered real service to history in pointing out that, until the utmost limits of the old Iranian Empire were reached, Alexander's aims never varied, and that the Greeks, few of whom approved of him, never expected less of the " Captain-General of Hellas " [173 *sqq.*] than he had accomplished at the end of 330. In every step he had taken so far, the King showed himself " an advanced student of statecraft," and, to a considerable extent, his work endured. The Indian expedition and the search for Homer's girdling Ocean-stream were altogether on a different plane, but whereas other writers have too often been content to let Alexander pass here almost into the realm of fable, Hogarth always remains a realist ; and no better account has ever been given of the terrible return by the Baluchi coast. Here he is able to show his hero as a hero indeed [248 *sqq.*]. He was less prone to man-worship than most biographers, but one closes the book with a feeling that Alexander came as near to being for him a great man as any figure in history.

In 1897 came Hogarth's appointment to be Director of the British School at Athens. It is not difficult to read between the lines of *Accidents* that such an official post irked him considerably, and he welcomed the " interlude " of going, as *Times* correspondent, to Crete : " My tempta-

* " I remember well," says Professor Myres, " Hogarth's talk with Dr. Cvijić, whom, in July 1915, we met, eastward-bound like ourselves, on a French mail-boat."

† I have often wondered that Machiavelli, who was so fond of illuminating his own times by sketches from Antiquity, did not fasten on Philip as the example of a successful *Principe*.

tion was brief ; I had never been in Crete and a scholar may rarely watch war " [21]. The charming ramble to Lycia (an interlude to that interlude) was much more to his taste ; and in 1900 he returned to a liberated Crete, this time as a most serious digger, and unearthed the marvels of the Dictæan Cave. Perhaps it was the stream of tourists that made residence at Athens less attractive than he had expected it to be ; he had had a scamper through Greece at Easter 1887, and one of his letters of that date is full of enthusiastic praise of the beauty of the line down to the Isthmus, and of the colossal work of the half-finished Corinth canal. And he had been enormously impressed by his first visit to Mycenæ, Argos and Tiryns : *

> " there is no doubt of the huge antiquity of these ruins : the Doric temple built on the top of them [at Mycenæ] proves that they must have been buried and forgotten as early as the 5th century B.C. . . . Neither time nor quarrymen seem to have made any impression on the ruins of Tiryns."

Meanwhile, in 1899, he had been general editor of a book called *Authority and Archæology*, to which several famous writers contributed, and himself added thirty-three closely packed pages on *Prehistoric Greece*. I do not regard Hogarth as a hoplite on vexed controversial questions ; controversy seemed to him a waste of time, and he always preferred to turn the flank of an opponent quietly rather than to adopt any form of frontal attack. But in these few pages he took up a position on the question of the continuity between the Creto-Mycenæan civilization and that of Classical Greece, from which, I think, he never retreated. He is inclined to throw the former a *very* long way back :

> " its origins were more distant from the age of Pericles than that age is from our own," but he finds " no sudden and violent break between Mycenæan and Homeric culture any more than the later Hellenes found one between the Homeric world and their own."

What he thought of Miss Stawell's recent attempts to read the *Scripta Minoa* into some form of archaic Greek words, I never knew, but I should guess that he would not have been unfavourable to them ; and he certainly held the traditions of classical Greece on the subject to be a better guide than some famous specialists have believed them to be. Hogarth only amplified and illustrated this view in *Ionia and the East* (1909), and *The Ancient East* (1914); both of which books one would search vainly for any suggestion that the question had provoked fierce controversy.

By the opening of the new century his fame as a writer on the ethnography of his chosen area had spread so far that it was natural for him

* It was perhaps this early visit, hurried though it was, that enabled him to deliver at Oxford in 1890 or 1891 a set of lectures on prehistoric Greece, " which," says Professor Myres, " started me on my own studies in that field ; although quite unillustrated, they gave a graphic impression of the artistic interest of Mycenæ as well as of the archæological problems."

to be asked to contribute a monograph on *The Nearer East* (1902) to Messrs. Heinemann's series called *Regions of the World;* and the first words of his Preface define his aim to be "the presentation of the causative influence of geographical conditions upon Man in a certain area." In the first half of the book he was perhaps handicapped by the scheme of the chapters, which may have been laid down by the general editor of the series: this led to much repetition and consequently to some loss of literary finish.* But in each separate chapter, and far more in the specially ethnographic chapters, Hogarth's sure hand drives home the requisite nails. Perhaps, indeed, he cared less for plutonic rocks and isotherms than a scientific geographer should care.† He certainly seems relieved when he can shake himself free from them and tell us that "physical conditions are a means to an end which is human life" [146]. Even in the earlier part of the book he is reaching forward to the same conclusion, as, *e.g.*, when he tells us that "those fat Rumelian plains of the Maritza are the vast home-farm of whatever Power may chance to rule in the capital city of the Eastern Empire" [25]; or why the pastoral tableland of Nejd contains more villages than the rest of the Arabian peninsula [72]; or explains the isolation of Egypt by the fact that the Nile, "itself an alien, has laid down a ribbon of alien soil and fenced the sea from the northern edge of the Plane by a large deltaic tract" [77]. Even happier is his conjecture that "the paradises of ancient literature (including the Garden of Eden) have to thank the nakedness of the lands about them for the grace they have found in the eyes of poets" [131]. He contrasts arid Palestine with fertile Syria, "Solomon had no more home-grown timber wherewith to cover the First Temple than the Sionists will find when they come to roof the last" [137]. He explains with admirable skill the tangled mixture of races and creeds in the Balkans, considering that it is only the coast dwellers in Greece and the isles who have some claim to represent the true Hellenic stock, but guarding himself with the words "whatever purity that may ever have had" [151]. The race that intrigued him most in that area was that of the Ghegs of the White Drina, "whose language is independent of, and prior to, the development of the Greek and Latin schism" [147]. One of his favourite ethnographic laws is that "all desert folk lie under an

* *E.g.*, there had to be a chapter on "products." A famous schoolmaster, speaking of the way in which geography was taught in schools, once said, "Oh yes, they learn the products of Ballarat, but they have no idea why Madrid is the capital of Spain." And, though the answer perhaps is "nor does any one else know why," Hogarth would certainly have been more interested in the "why" than in the "products."

† I have not met a single isotherm in his printed works: and there is a passage in his speech at the R.G.S. Dinner of 1924 in which, proposing the health of Professor Hayford, "one of that small but supreme *élite* of geographers who carry about with them sufficient intellectual oxygen to enable them to move easily over the peaks of the higher mathematics," he adds, "his theory of Isostasy I approach with the same awestruck respect which I tender to Einstein and the theory of Relativity, and for the same reason, that I do not quite understand it."

imperious necessity of coming into relation with a fertile area, but they bring with them the acquired habits of steppe-life, and so they sterilize the edges of what once was fertile " [162].* Or, again, on the religious question:

> " So various and so inconsistent are the attitudes of Moslem society towards Allah that it is not the Arab but the Turk who has had to save Western Islam in Arabia from a general relapse to those ' heathen ' beliefs which were old before Mahomet appeared in Mecca " [174].

Much of the later chapters of the book has become obsolete during the last quarter of a century, and Baghdad is (for the moment) certainly more than " an emporium of Inner Nejd and of Inner Irak Ajemi " [218]; but even in 1902 Hogarth foresaw much when he asked whether " the Persian Gulf was to become a link in a great line from the Far West to the Far East," and whether " an Euphrates valley line, lying chiefly through deserts, was to be made for the use of the Lords of India " [219]. And the summing up of the influence of his Near East in both directions remains true for all time, and admirable: " birthplace of the Semitic and Greek social systems, and of their joint issue, the Christian code of Ethics, it has supplied the strongest influences which have acted upon the Western type of mind; and, birthplace of Islam, it has modified only less powerfully the Eastern type." Politically, he foresaw it all in the melting-pot in some very near future, and he lived to bear a distinguished part in guiding the policy of his own country in the regions which he knew so well.

The Penetration of Arabia (1904) has been called the least interesting of his books, perhaps because, being wholly a compilation from the works of other travellers, it lacks the personal and intimate note. Yet it has had a very extensive influence on the imagination of readers, and has appealed to men untouched by his other work—to explorers, to would-be explorers, and to soldiers, especially. Hogarth had a good working knowledge of Arabic, as of Turkish and Greek, and had read every book in every western tongue about the country and the people—a people, moreover, which appealed to every romantic and lawless instinct in his nature. But it was about a land in which the Scholar himself had never wandered, in which indeed, even in war time, he was barely to set foot. As we should expect, the lure of Antiquity counted for much with him—the existence of Roman or pre-Roman inscriptions on the site of ancient Tema; the probable divergence of roads from Petra to Gerra in the east, and to Sheba in the south; the expedition of Ælius Gallus, and the Ptolemaic map of the peninsula. But only his great natural *flair* for geography *plus* his learning in travel-literature can have em-

* Miss Bell (*Letters*, I 206, 26 March 1905) noticed the same movement on the edge of the Syrian desert, concluding that " in some distant age there will be no nomads left in Arabia, but it's still far off, I'm glad to think." Cf. also *The Desert and The Sown*, p. 256.

boldened him to write the book at all; and his cautious and tentative guesses, on the configuration of the vast region covering 20 degrees of latitude and nearly as many of longitude, have not all stood the test of time.* All geographers had believed, though no one had expressed the belief so clearly as Hogarth, that the peninsula has a gradual slope from west and south to east and north, and the question that interested him most was whether either of the great wadis, the Hanifa in the south or the 1000-mile long Wadi ar Rumma in the north, had any surface drainage as well as subterranean drainage—in other words, whether there was, or ever had been, a river in Arabia. He will not even reject the possibility of a great central lake in the southern desert;† readers may remember how long a similar theory fascinated early explorers of the Australian continent. He is able to show how the great sand-belts probably originated in the denudation, rapid in such a climate, of the western mountains; "were it not for volcanic tracts, all the centre of the peninsula would now be masked by the ruins of the high western rim." Another interesting geographical conjecture is whether the projection of Oman is not rather a piece of that Persian coast which lies across the mouth of the Gulf than of the Arabian peninsula itself, with which the broad isthmus of its connection is as yet unexplored. "The inaccessibility of this region is repeated in that of the southern borderlands, in which it is probable that survivors of the oldest pre-Semitic inhabitants, *hospitibus feri*, are still to be found."

The book contains a clear and most interesting account of all the recorded journeys in Arabia, giving, as is most justly due, the palm of honour to Doughty.‡ Of Palgrave's famous but often-questioned journey he was then and ever afterwards a stout defender, or rather of the fact that Palgrave ("for whom he certainly held no brief," and on whose details he placed no reliance) "had actually gone where he said he had gone." Twice in post-war meetings of the R.G.S. he defended Palgrave against Mr. Philby [see *G.J.*, March 1920, February 1925], while according due praise to the accuracy of the latter's observations, and accepting gratefully much of the criticism on his own book. On 12 February 1923, in discussion on two papers by Mr. Philby and Major Holt on the Northern Desert, he modestly said that "his own knowledge was now far exceeded by that of both these explorers," but he poured abundant cold water on the suggestion of a railway,

* Mr. Philby, just returned from the third recorded crossing of Arabia from east to west, contended, in a paper read to the R.G.S. on 28 April 1919, that one of the main valleys of the peninsula drains at right angles to the direction described by Hogarth.

† Mr. Philby actually saw lakes, "a very strange and unexpected feature," though not in the Southern desert, which neither he nor any one else has yet crossed; and their existence had been reported a hundred years ago by French officers who accompanied Ibrahim Pasha's armies.

‡ At the time of his death Hogarth had almost completed his *Life* of this great poet-explorer, but I must not here anticipate its publication.

" which at present at least is hopeless because of the present crisis in the desert : for the first time in the memory of man the ordinary laws of desert hospitality do not hold " ; and he doubted the permanence of the Wahhabi State or rule after the death of Ibn Sa'ud, remembering that " it was the Northern Bedawin who were our allies in the war and who took Deraa and Damascus for us." At a December Meeting of 1925 he acknowledged the great contributions made by Major Cheesman to our knowledge of the fringe of the Southern Desert, and repeated his belief that the Al Murra tribes on its eastern edge are probably pre-Semitic : " perhaps even the Sumerians and other Mesopotamian peoples came originally from Arabia, and these are the residuum." On 11 May 1925, when Mr. Philby, in describing his journey from 'Amman to 'Aqaba, discussed the origin of the saltness of the Dead Sea, and pleaded for the excavation of Petra, Hogarth showed himself distinctly in opposition : for " Petra was never the centre of any native art or civilization ; places farther north in Moab would be better worthy of archæological exploration " ; as for the Dead Sea, the saltness and foulness of the Jordan accounts for much : " the Jewish Jordan and the Holy Well at Mecca appear to be about the foulest waters in the world."

In the early spring of this year 1904, the same year which saw the publication of *The Penetration of Arabia*, came Hogarth's cruise on the beautiful yacht of an American friend, first to the sea-lochs of Caria and Lycia, then to the Satalian gulf, where they saw the finest ancient amphitheatre of the world at Aspendus, and ending up with the brief but interesting visit to that land which was still reputed the least accessible in the Moslem world, Cyrene. All this is so perfectly described in *Accidents*, and also in the 1925 edition of the *Wandering Scholar*, that it would be idle to give extracts from it here. Every one knows that in 1904 Cyrene, untouched by any archæologist since 1861, and then barely scratched, was believed to contain unimaginable treasures ; but the fierce Senussi settlement there rendered it quite unsafe. Hogarth and his friends, indeed, found nothing worse than black looks from the local Bedawin, but their visit was almost entirely spoiled by the bad weather which made re-embarkation on the yacht a matter of some difficulty. He turned his back on the ancient Greek city with great regret and with hopes of returning some other day. Such was not to be his luck, but the reconnaissance of the yacht *Utowana* was followed by an American archæological expedition in the last years of Turkish rule. Then the war between Turkey and Italy in 1912 was preceded, as well as followed, by the scholar's worst enemy, political intrigue ; one of the American explorers was murdered, and excavation was suspended. Latterly Italian authority has been so far established in the neighbourhood that it has been possible to clear a large part of the centre of the city, with rich reward of sculptures and other archæological remains.

In September the indefatigable man was off to Ephesus (on behalf of the British Museum), where he was to discover, after very hard labour, two earlier temples on the site first explored by Wood in 1874. This work, prolonged till the summer of 1905, is admirably described in the seventh chapter of *Accidents;* it is also illustrated by a delightful series of letters, which Mrs. Hogarth has kindly allowed me to peruse, and which give us glimpses of the more domestic (or undomestic) side of the explorer's days. "It is the sheerest ganging," he says: "I have 65 men (and hope soon to have 100), 4 carts, and 3 packhorses, at work, clearing away vast piles of stones and mounds of earth which have been examined before." Three shocks of earthquake, with the heavy heat which accompanies them, do not make this any more pleasant. Visitors, mostly natives, are a perpetual nuisance:

> "the Greek Consul has come over from Scala Nuova to see me, confound him! I must give him lunch and talk French to him: it seems absurd, as I would much rather talk his own tongue, but it is so much greater a compliment to a Greek not to talk Greek. I find my Greek house and establishment quite tolerable; the woman makes quite good pilaff, and what more need one have?" [16 Oct. 1904].

In December he is down to the floor of the earliest temple and has found wonderful treasures, but is nearly dead-beat from the cold and wet. The men have practically struck and many have fallen ill. By the 11th he is heading for home *viâ* Constantinople, where

> "I shall have to work upon the pride of Hamdy Bey" (Director of the Museum there), "to be allowed to take a fair proportion of these treasures to England. I shall have to tell him that it will be difficult to get the British Museum to give money for a second season's dig unless it does get this fair proportion. We could clear the whole site for £1500, and I shall come back in March" [Letters of Dec. 5 and 11 from Smyrna].

In May 1905, soon after his new season had begun, he is down with fever, which the doctor at first diagnosed as typhoid, and takes refuge in the British Seamen's Hospital at Smyrna; he goes back to work much too soon for health, and gets hold of three powerful force-pumps, lent by the Smyrna-Aidin Railway Company; the result is rapid drainage, and the "finds" are even more splendid than before: he hopes to finish by mid-June [Letters of 8 and 21 May 1905]. In July he is at Therapia, on the Bosphorus, and goes daily into the city; he finds the Bey in high good humour for the moment,

> "because Poynter has been here and invited him to send a picture to next year's Academy. . . . The beauty of the Bosphorus at this season is beyond words, but the air is very damp . . . The hotel is very Levantine and greatly patronised by Greeks and their ladies, who, in spite of the worst appearances, are, I believe, painfully proper" [Letter of 3 July 1905].

In 1908, the year in which he succeeded Sir Arthur Evans as Keeper of the Ashmolean Museum at Oxford, he began his excavations on the Euphrates [see the last chapters of *Accidents* and of *Wandering Scholar*

(1925 edition)], which were to be carried on intermittently till the eve of the Great War ; and it was for this task that he first had the insight and the good fortune to enlist T. E. Lawrence as an apprentice.* Henceforth the mysterious " Empire of the Hittites," which had, in fact, fascinated him as early as 1890, looms very large for those who would follow his activities. The last words of the edition of 1925 run thus :

> " This much is sure, that in Shalmaneser's day there was a city of Mesopotamia, facing the Sajur mouth, larger in area than Carchemish, where both the Hittite and the cuneiform characters were known and used. Surely there diggers will search some day for the bilingual text which shall unlock at last the secret of the Hittite script."

Quod Di bene vortant. Ionia and The East (1909) is a reprint of six lectures delivered before the University of London, and, while in the main it is an amplification of the position which he had taken up in *Authority and Archæology* ten years before [see p. 328], it was also a foreshadow of that which he was to restate, more concisely and more brilliantly, in that which is perhaps the greatest of all his printed works, *The Ancient East*, in 1914. This is that the Ægean culture from the West met the Lower Mesopotamian culture from the East more " by the Land Route across the Anatolian Plateau than by the Levant Route in Phœnician keels " [31, 84] ; athwart this route the Ionian coast settlements were gradually founded soon after the fall of that Ægean culture ; they were founded by Ægean colonists, fleeing before uncomfortable " Dorians " and their kind, and perhaps taking some of the Dorians, as leaders, with them. But their situation had always been a precarious one, for

> " the rich littoral districts of Asia Minor have always fallen into the grip of Continental empires inland unless there should be a very strong maritime power of European origin, which desired them " [48]. . . . For the Land Route there were " three roads and three only across the Plateau, and so well has Nature marked these roads that traffic has been fain to follow them so far back as human memory runs, and follows them to this day " [64].

Scattered about the heads of all these three roads lay, from century to century, successive great Empires, and of these the Hittite was certainly one.† Finally, the text of the whole six lectures is, if not the unbroken permanence, at least the re-birth of the old Creto-Ægean culture (whose origin is lost in the night of ages) into the later Hellenic of the classic centuries.

That Hogarth had a " genius for sketches," for presenting his readers with great value in little bulk, must be acknowledged by any one who reads his tiny manual called *The Ancient East*, published in the first

* Miss Bell (*Letters*, I 305) writes, on 18 May 1911, " To-morrow I go to Carchemish in the hope of finding Mr. Hogarth there " ; but he had left, and she found instead " a young man called Lawrence : he is going to make a traveller."

† In September 1910 he gave a brilliant single " discourse " to the British Association at Sheffield on the Hittite Empire.

month of the War [Sept. 1914] in *The Home University Library*. When coupled with Professor Myres's equally brilliant *Dawn of History* in the same series, it seems as if the two books summed up, not only all that man knows but all that he is ever likely, *pace* the Hittites, to know, about the remotest past. Hogarth was *felix opportunitate*, for that "Ancient East" was just about to be blown sky-high. Whether it was going to "let the legions thunder past and plunge in thought again" must have seemed to him very doubtful within a few months of the publication of the book. It is a more truly geographical book than any of its predecessors, even than *The Near East*. The great lesson to be drawn from it is that "the strong frontier of Asia lies not on, but behind, the coast," and so "Persia lost little when she abandoned direct sovereignty over the littoral, and the cities of that littoral lost much, economically speaking, by that abandonment." The climb is much steeper on the east than on the west, but it is everywhere a climb.* Earlier in the book Hogarth explains that isolation of Cilicia from the rest of Asia Minor, which has so often puzzled historians of the Crusades. It is the Taurus which is such a desperately difficult boundary to surmount: "in its heights the Arab tongue is chilled to silence"; it has parted both races and languages most effectually. He explains also the absence of Phœnician sailors from Greek and Italian lands; "they were essentially southerners and hugged the southern, rather than the northern, coast of the Levant." He explains why Egypt never long remained subject to any Asiatic Power, or to any Power which had not command of the sea; the reason is wholly a geographical one—her triple barrier of desert, fenland, and sea. He corrects to some extent his earlier estimate of Alexander: "the Macedonians were a continental folk bearing down the peninsular population of the Mediterranean"; the true Greeks were not bamboozled into "taking Alexander at his own valuation as a Hellenic Crusader"; and he is perpetually warning us against exaggerating the Hellenization of the East. For "Hellenism is of the cities, and in the East peoples have always mattered more than cities; and, with peoples, religion, the very element in which the rationalizing Greeks were so deficient."

No one has shown better than Hogarth, and he nowhere better than in his *Epilogue* to this little book (perhaps just because his own outlook was so essentially Hellenic), the interaction between Greek philosophy

* Miss Bell (*Letters*, I 218, 7 May 1905), writing from Karaman, says, "The Mountains have no other side, if you understand me; I have come (from Adana) 6000 feet up, and didn't descend more than 600 on the north side"; and again (I 237, 7 May 1907): "A melancholy land in spite of its lakes and mountains. . . . You leave the bright and varied coast-line, which is Greece, full of vitality and the breath of the sea . . ., and with every step into the interior you feel Asia, the real heart of Asia, . . . monotonous, colourless, unsubdued by a people whose thoughts travel no farther than to the next furrow. And that is why the Roman roads make so deep an impression on one's mind . . .; they tell of a people that overcame this universal stagnation."

and Semite devotion to mysteries. These, meeting in Alexandria and all round the littoral of the Levant, went to build up the early system of the Christian Church. Just as there was a passing westwards of Asiatic mystery-ideas, so there was an eastward passing of Hellenic philosophical ideas. But in a less degree; for the Euphrates was another great racial boundary; and the east of Iran, early lost by the Seleucids, remained unreceptive of either influence, Greek or Semite. No doubt this was helped by the later irruption into Persia of new "Parthian" barbarians from Turkistan, who, though they might assume Iranian names and forms, were in all probability merely of "Turkish" descent.

The same theme is continued in the last of Hogarth's books, his little *Arabia*, of which the preface is dated Nov. 1921. It is one of the Clarendon Press series of histories of our Allies in the late war. There we may read how the Arab conquest of Sassanid Persia left greater effects on the victors than on the vanquished:

> "even in Mesopotamia, properly a Semitic area, a foreign leaven had been working for so long that the local culture was an Irano-Semitic hybrid," and "wave after wave of Iranian influences, which the Prophet would have anathematised, washed back to the very cradle of the Faith."

Nay, from the establishment of the Syrian Caliphate at Damascus, and far more after its removal to Baghdad, "Arabian history shrinks back into the peninsula of its birth." The Holy Cities have been in perpetual unrest, the bone of contention being ever the chance of fleecing the pilgrims who visit them; if geographical position made Medina the more subservient to the Egyptian Fatimites, Mecca was sure to be found in opposition to them, and "Mecca, never able to feed itself, still less to feed its pilgrims, was, is, and will be, constrained to depend on more fortunate lands; yet Mecca hated Egypt so much that it almost preferred to lean towards Irak or the Turk." Hated, however, the last has always been; and when the Ottoman State had become "less an empire of Islam than a re-birth of Mediterranean Empire," Southern Arabia at least was ready to play into the commercial hands of European adventurers, Portuguese, Dutch, English; and "even some inland cities were more accessible to Europeans in the seventeenth and eighteenth centuries than they have been since the Ottoman reconquest." It is by such shrewd generalizations as these that Hogarth displays his wide outlook on history, an outlook only made possible by being based on his even firmer grasp of ethnology and geography.*

I have taken *Arabia* out of its chronological place in Hogarth's life because the period of the War claims a treatment apart from his writings. All my readers probably know how he became, in 1916, with temporary Naval rank, head of the Arab Bureau, for which Cairo seemed to be the most convenient headquarters available. But they do not, and none of

* Mr. Douglas Freshfield says, "Hogarth seems to me the most prominent instance of the use of Geography as an ally in other pursuits."

us do, know much more than this fact and the few comments upon it which appeared in his obituary notice in the *Times* on 7 November 1927. The publication of Lawrence's *Revolt in the Desert* and of the late Gertrude Bell's *Letters* tell us much of the results of Hogarth's activities, but not the details of those activities themselves. His own home letters were models of discretion, and I propose here to follow his example by merely quoting a few of these, but not attempting to read or write between their lines on matters political.

At Cairo he slept as a rule either at a hotel in the city, or at the Mena House by the Pyramids, or even as far out as Helwan ; at all these places, but worst in the city, he suffered greatly from heat ; and, roughly speaking, he was seldom well unless he was on the move—at sea, or under canvas in Palestine, to which area he paid several, evidently most important and interesting, visits. Nor can one say that he was often in good spirits ; as I stated above, he was not much in sympathy with officials and offices, and he chafed a good deal against regulations, the need of which he perhaps underestimated. But letter-writing was evidently a relaxation to him—as one of his sisters says, " he was born with a pen in his hand * "—and there are long passages in these Eastern letters on quite indifferent subjects : once, having been kept four days in Rome on his way out (Sept. 1917), he pours out his wrath on the extravagance of the new buildings of the British School there " while no adequate provision for its maintenance or for proper salaries has been made " ; three months earlier, having been refreshed by reading a review of Swinburne's Life at Cairo, he writes his wife a delightful disquisition on the Swinburnian school of poetry " all of which seems unseasonable and may bore you, but it is a relief to think and write about anything but telegrams marked ' Secret.' " There are few of his letters which do not contain delightful sketches of native life, or of scenery, or, above all, of the flowers he sees.

The letters before me are all written either to his wife, his son, or his eldest sister ; and in quoting from them I shall not distinguish between the recipients. He was already fifty-four when his job in Cairo began :

> " as old as the Senior Generals, and older than the Senior N.O. ; . . . these flowering trees and shrubs are a poor substitute for the English Spring. . . . The ' Gorgeous East ' is always better in dreams than in reality, and this is a very pinchbeck bit of the G. E. ; we have had five days lately well over 100° and one of 113° ; every degree over one's blood-heat is terribly trying " [4 April 1916]. " This (Cairo) is the most flat uninteresting place in the world ; it is a tragedy, or a comedy, that we should labour to possess it " [24 July 1916]. " Mena House Hotel is now turned into a Staff College where thirty young officers are being taught by three instructors, who

* In light verse also he had the happiest pen, though he used it sparingly. Three of his best are preserved in *More Echoes from the Oxford Magazine*, one of which, *A School of Flirtation*, 1891, is traditionally believed to have been written in the train between London and Oxford.

were all rescued from the *Ivernia*. . . . All the natives and Levantines have made money galore. The Greeks all profess Venizelism, but one knows they are only waiting to see which way the cat will jump" [25 Jan. 1917]. "The war doesn't affect the natives; there is plenty of food, money, and petrol; we work in their midst without regarding them at all; in fact, my own show has nothing to do with the country in which it happens to be located" [8 Feb. 1917]. "Just back from the Red Sea, where I was grilled, but saw much strange and new; the beauty of the coral reefs and the water on them I'll never forget" [10 June, no year, but ? 1917]. "We are only a side-show of the great play: Jerusalem is not ours yet, and I doubt but it may take long. I've not been up that way since Gaza fell. People don't realise how tiny a land Palestine is . . . but Lord! what a mush of intrigue it makes! I feel up to my neck in it and haven't a shred of conscience left. Not that that matters!" [1 Dec. 1917, from Helwan]. "I have been ill for three weeks with bad colds: I had to go up to Gaza while it was coming on. Gaza was interesting but a desert; I was there when Jerusalem surrendered. . . . Bit by bit all sorts of strings have got into my hands, and I don't know into what other hands to pass them now" [22 Dec. 1917, Helwan].

In January 1918 came his visit to Jidda. Three wonderful letters [Jan. 10th, 12th, 18th] describe it, and his business there so far as it could then be revealed:

"I sit in a rambling four-storeyed house of white coral with a sort of eruption of carved balconies all over its face; one window looks on the desert, up the Mecca road, to a wild line of hills, the other to a glassy bay (it was anything but glassy yesterday), fringed and barred with coral reefs of all colours of the rainbow. The most useless city-wall in existence is just in front, and, behind, these weird balconied houses are piled up tier on tier. Most of them are empty and kept to lodge, and fleece, pilgrims in. Two or three villages out on the desert, all too dangerous to be entered, and nothing else except the white domes and walls of Eve's tomb. I went to look at this yesterday: our first mother is supposed to have been about 100 feet high, and there is a dome at her head, another at her waist, and a third at her feet. The waist one is the chief, and they gave me a glimpse within a wooden screen of something made of basalt, very old and, I should say, prehistoric; but I couldn't make out the shape of the stone, nor whether it had any carvings or reliefs on it, or only natural lumps and corrugations. . . . Jiddah is a strange uncanny place which breathes danger and death. . . . One knows that slave-dealing, gun-running, and murderous intrigues are going on all round one. . . . The city has not a straight line anywhere, the houses are at all angles and all levels, leaning over this way and that: winding in and out of them little dark earthen alleys, twisting and turning back on themselves, blocked with Bedouins and camels and water-sellers, hawkers and pilgrims. . . . The thermometer even in this month gets up to 80 and 90. Luckily mosquitoes are not bad yet."

From the ship *Hardinge* on his way back to Suez or Cairo he continues:

"Since leaving Jiddah I have been at Yambo, Wejh and Akaba. Wejh was rather nice, and I found a British boy-officer who put me into a battered Ford car and ran me up the Wadi (the pilgrim's road to Medina runs inland from Wejh up a labyrinth of wadis) over stones and sand to a ruined Mameluke fort in the desert. Akaba, with its fringe of palm-gardens by the sea,

and its wild mountains, burned and bare as the hills of Hell, behind, was fascinating to see, but reeked too much of dead and unburied camel ashore. Wanted, a few scavenging vultures; for some reason there isn't one, not even a carrion crow or a hawk. The only thing in the incredibly clear air were two of our planes returning from bombing the Hejaz railway 100 miles inland; the sea deep purple with foam-flakes" [19 Jan. 1918]. "I expect to be under canvas for the next two or three months: how young one is and how old one will be when the war is over and the strain relaxed"! [8 Feb. 1918].

The next batch, to the three same recipients, is dated from G.H.Q., 1st Echelon, Palestine:

"My paper is all covered with sand and there is a good deal in the ink and in the food at lunch. . . . Though I am in Philistia, where Cretans are said to have been active, it all seems very remote at this minute; but I mean to have a look at Ascalon, where Evans wants to dig for Cretan things. We have had fearful samples of changeable weather in the last 24 hours, and it is making havoc of the new roads we have constructed for the next advance. There are Jewish colonies all round here, quite surprisingly civilised, with public baths and reading-rooms and concert-halls; and next door you see an Arab village of mud, quite happy without these things. The Jews grow grapes, and oranges and make quite good, but rather gouty, wine, but alas! no marmalade" [15 March 1918]. "Four of us, in a little Ford car, which rebelled against its load and got red-hot four times in thirty miles, have just been up to Jerusalem; it was a radiant afternoon, and we wandered among the flowers while the car cooled. I got through my business in time to take my friend and the two chauffeurs to the Church of the Holy Sepulchre and the Mosque of Omar; unless taken by an officer 'other ranks' are not allowed in the town, and they were immensely grateful and quite intelligent. At the Mosque we saw the Friday parade of the Egyptian detachment, and this impressed 'my children.' I took them to the Wailing-place also, and through the Bazaars. I shall have my reward next time I want a car in a hurry. The place was full of refugees from the east of Jordan and of liberated Armenians; I saw the types of my Ephesus workmen once more, and found them very grateful for the little help and the very bad bread given them" [14 April 1918]. "I am going down to Cairo to-morrow to see what need they have there; I can do certain things for the Staff here which no one else can do, but they are hardly sufficient to employ me. I go up, now and again, to Jerusalem, but always find that atmosphere of priests and Jew fanatics and politico-ecclesiastical intrigues rather uncongenial. For myself I'd give the place to any one who'd undertake to look after it" [18 April 1918]. "Here all depends on the Arab show—whether that has vitality enough to go on. I've just been down to Jericho and that amazing burnt-up trough of the Jordan and the Dead Sea, and watching a whole army move down to it. The dust of hundreds of lorries and tens of thousands of horses, mules, camels, and wheels, hung all over us like a pall of smoke. If the hill from which I looked over the Dead Sea is really, as tradition has it, the Mount of the Temptation, I wonder what the Devil had to show? When we got down to the bottom, the deepest thing on this Earth, one felt as if the central fires were pretty near one's feet. I'm not going to see the 'Holy Fire' on Saturday: I don't see why we countenance such a show, and have said so. All very well for the old Turk who didn't

pretend to believe, but we have to. However—only one more pretence added to a long list" [30 April 1918].

"T. E. L. has been here, very well and as hopeful as ever. D., who saw the Holy Fire, tells me it was a beastly indecent performance, but there was not, as there so often has been, any one killed. We want rain badly and all vegetables are dried up, but apricots begin to ripen and mulberries are forming; pomegranates only in flower as yet, cactus-hedges bursting into flower. My little Scot made a *chevaux-de-frise* round my tent with their cut-off leaves two months ago, and now they are throwing out fresh leaves and some are going to flower. The camp is pervaded by a very rare species of mole-rat, not existent I believe in the Zoo; the other queer beast is a snake-like lizard with legs so short and feet so small that, till he moves, you would take him for a thick short adder. . . ." [The letter is finished at Cairo, whither he goes on May 6 for ten days.] "A violent thunderstorm and torrents of rain, so it is delightfully cool here. It is the great popular festival of Sham-en-Nersim, when the women and children go into the country to smell the flowers: their idea of doing that is to sit in the dust on the Pyramids road, or on a dung-heap in the nearest village" [4 May 1918].

There are several letters, both from Cairo and from Paris, with reference to the Peace Conference, in which Hogarth bore his full share of the heavy burdens of the settlement of the Near East, but I must eschew politics and omit his occasionally sharp criticism of his collaborators. Let me, then, conclude the series with a picture of Damascus a month after the Armistice:

"You have so often said that you would like to see these Oriental places that I rather hope for your own sake that you may never see Damascus. Philip Waggett, who was here a week ago, summed it up, not inappropriately, as an oriental Ratcliffe Highway. In sober fact it is most curiously unlike the tourist legend of it. The best part is modernised so as to look like a very mean American suburban avenue. The rest is huddled and filthy beyond description, and hardly anywhere picturesque enough to make one overlook its sordidness. At present it is at its very worst. One talks of 'seas of mud,' but one really sees them here—mud into which you sink to mid-leg covering uniformly a mile of street. There are trams, and the rails form the most appalling obstacle to circulation, for all the roadway in which they are embedded has been allowed to perish, and the rails stand up over six inches out of the slime. I had to do two miles, out and back, of such a road this morning to inspect an Armenian refugee camp. The car ran axle-deep in slime and decayed vegetable refuse all the way. I've always felt the same about Damascus, ever since I've known it.* Aleppo is much more attractive, and I've seen it in at least as bad weather. For something like the East, as imagined by poets and tourists, one has to go, I fancy, to Morocco or Spain. There is a good deal of Cairo which answers to it, but then—there is so much that doesn't! India, Japan, etc., belong to another East altogether. . . . I had an interesting trip a week ago into the wild East Jordan country, but it is the wrong time of year, and we were lucky to get through; it is a curious anarchic no-man's land at this moment" [10 Dec. 1918].

* It is only fair to contrast with this Miss Bell's glowing description of this city in the seventh chapter of *The Desert and the Sown* (1907).

The return of Peace and the return to the "possibly dull" work at the Ashmolean [Museum] brought with it many fresh activities and some pleasant compensations. Although Hogarth had always felt that the getting of material in the field was a job distinct from that of preparing for publication an account of the said material (a process which usually bored him), yet within two years of the Armistice he had produced for the Ashmolean his classic work on *Hittite Seals* (Clarendon Press, 1920). His last two years were marked by his activity as a "Statutory Commissioner" in the body which was appointed to give effect to the recommendations of the Royal Commission of 1920 on the University; he appeared to be doing the work, as he did everything else, easily and quietly, but it can scarcely have been congenial.

Far more interesting to him were his ever-growing interests in the R.G.S. in London. He had been a Fellow of this since 1896, and in 1917 had received the Founder's Medal. He hardly ever missed a meeting after his return to Oxford, and his speeches at these meetings and at the Anniversary Dinners are recorded in the *Journal*. He was elected President in 1925, and the themes of his first address in that capacity [21 June 1926] are as follows: first, a tribute to his predecessors; secondly, a review of the rather serious financial position after the war; thirdly, a warning to the effect that it is nonsense to say that there are no unknown regions left to map and investigate:

> "Even during this last Session we have been introduced to tracts and peoples, seen for the first time by white men, in South America, Western China, Abyssinia, and on the borders of Assam and Burma. But now," said he, "it is 'stunts' that get interest and get huge funds to spend, dashes to the Poles on airships, and the like; the cost of each of these, which are geographically quite useless, would furnish forth a dozen really useful and knowledge-reaping expeditions."

He then told the story of two Italian airmen, who in 1917 had proposed to fly across the southern desert of Arabia from Aden, but who were obliged to confess that they would have to fly so high that they could make no record of what would lie beneath them.

The last paper he read himself, 4 April 1927, was one which is bound to become classic, for it was on the 1913–14 journey of his friend Miss Bell to Hayil. Miss Bell had intended to publish her account of it, but the war mobilized her as well as himself into the service of the country, and her subsequent employment at Baghdad made it impossible for her to find time for dressing her journal for press:

> "but," said the President, "all sorts of gains accrued to geographical and archæological science from that journey, and added to our social and political knowledge of the Arabs. The first stage not only put on the map a line of wells before unplaced or unknown, and enabled account to be taken during the war of the strength and local ranges of the Jebeliya tribes, but also cast much light on the earlier history of the Syrian desert; on the second stage, from Ziza to Hayil, Miss Bell acquired information about the tribes ranging

between the railway and the Nefud, particularly about the Howeitat group, of whom Lawrence, relying on her reports, made signal use in the campaigns of 1917–18."

At the Anniversary Meeting [June 20] of 1927 he referred to the very useful commencement of a series of reproductions of beautiful early maps; to the very great value of the (wholly unremunerative) *Geographical Journal*; and spoke in a hopeful tone of the assistance which the Society is now again increasingly able to give to the cause of exploration. The President ended by holding out good hopes of the successful sale of the surplus land attached to the Society's premises, for which the contract was all but complete. When this should actually be accomplished he looked forward to building the so-much-needed Lecture Theatre and a new Library.*

Followed the Anniversary Dinner at which Sir John Simon proposed the health of the Society and of the President in most felicitous language; and Hogarth, in the course of an equally felicitous reply, made the allusion to Herodotus which I have quoted above.

To the Clarendon Press also he gave time, thought, and energy almost as great as that which he gave to geography or to his own archæological studies. He had been a Delegate for two years before the war, but it was as Chairman of the Finance Committee from 1921 to his death that he made the greatest impression on his colleagues, one of whom writes as follows:

> "This born ruler of men knew how to get his own way mainly because he was convinced that it was the right way. Some question of policy, or the fate of some book, might be on the *tapis*, and hesitating opinions were being expressed at our long table; he would sit rather silent at first till perhaps he felt that our puzzled faces were being turned to him, and then, without any appearance of emphasis, hardly of persuasiveness, he would sum up the argument in the fewest possible words, but always (for he was an artist in speech as well as in writing) in perfectly chosen words; they fell on his audience as the ruling of a trusted Judge falls on his court."

He had a natural *flair* for good literature, and also for the highest public demand for it; still more for the qualities of individual men. His knowledge of the past careers, and the future prospects, of the persons who make up the European literary world was extensive, at times almost uncanny; and, if he did not champion many causes, it was because few men came up to the standard that he required of them. Thus, with abundant tolerance and much kindness for individuals, and a complete absence of hatred or enmity for any one, he combined rather a poor opinion of "men in the lump." Underneath there was always a fairly strong determination by one avenue or another to get his own way —he was always πολύμητις Ὀγαρθος. It was the Rev. Dr. Fisher, Senior Fellow of Magdalen (who remembered the Regency and dressed

* The sale was actually accomplished, and a telegram was sent to him in his last illness apprising him of the exchange of contracts.

accordingly), who gave him this epithet, and almost lived to see how prophetic he had been ; at least, he was able to follow with great interest his young friend's first footsteps in the track of Odysseus.

To very very few, and to them very very seldom, were Hogarth's strongest feelings shown ; this was neither from lack of sensibility or of romanticism, nor again from indifference or pessimism with regard to the future. He may have felt, I think he did feel, the last at times, but he always strove to tread it down. In his early life, at least, he was also quite ready to hide his own industry. Mrs. Courtney, in the article from which I have already quoted, speaks quite definitely of his early successes at Winchester and Oxford having been achieved by sheer ability and " undeserved by any standards of hard work " ; and perhaps it was true that he could do " on his head " tasks which cost his contemporaries the sweat of their bodies as well as of their brows. His acute and critical intellect, coupled with a delightfully easy memory, would gain in half an hour such insight into a problem as it would take a " plodder " an hour or more to master. There may have been also a half-humorous *pose* in it ; his calm and *insouciant* manner of speaking of his own intellectual interests allowed people to think him indifferent to these.

Hogarth's was, then, an elusive personality, of which to give one compendious account, one convincing character-sketch, is almost impossible. Its facets were so numerous and so luminous that we were perpetually astonished at their variety and their quick changes. These, you will say, are not commonly the marks of a man who is widely trusted. Yet here he eluded us most of all : ἔλαθεν, " he escaped our notice," as the Greeks would have said, in being one of the most widely trusted men of his day, nor did any one ever more amply justify the many trusts that men of all shades of opinion reposed in him. I may perhaps be allowed to sum up his character in the words used by T. E. Lawrence in a letter written on receipt of the news of his death :

> " His advice was always the last and the best that I asked for whenever I had a question to decide. There was an extraordinary ripeness about him : yet none of his angles ever ripened into insensibility. Of course he had very strong opinions—he was very strongly built, so far as character went—but he was always considerate towards every man's sincere opinions. Yet when he got a fraud he'd skin him alive. Wherever he went people naturally grew to lean on his advice. His was the most civilised wisdom I've ever met ; for he had met so many sorts of people and gone his detached way with so many self-seeking or jealous races and cliques, that he knew everything about man's nature ; and yet he was kind to them."

Quid plura ? Hogarth had crammed three men's lives, very happy and useful lives, into one ; and he paid the penalty long before his friends had expected to see it paid. In youth and early middle life he was strong, supple, and active, and gifted with endurance far beyond the

common standard; to the end he was light-hearted, brave, and gay. He loved, perhaps too much, hard physical exercise, especially in his beautiful garden, first at Forest Row and then in St. Giles's, Oxford. No satisfactory portrait of him exists; the most characteristic would have been one of him in his shirt-sleeves, with a pipe in his mouth, mowing the lawn. But the hardships and excitements of Eastern travel, prolonged for half a lifetime, the vile food, the viler *gîte*, the long exhausting rides on every kind of impossible mount, perhaps with fever, boils or dysentery thrown in, may have begun to sap his strength earlier than he realized; they certainly sowed the seeds of chronic indigestion in a naturally hungry man, and that is a disease which is frequently the precursor of serious heart-trouble. He was never "his own man" after his return from his splendid and slenderly-rewarded war-service in the East. A doctor whom he saw a year before he died put to him plainly the question, "Can you agree substantially to curtail your various activities?" I believe he gave no direct answer, which was his characteristic way of saying "No"; and he did not curtail them until within five weeks of his sudden death on 6 November 1927.

Γῆς ἐφίλεις τόδε χρῆμα τὸ δαίδαλον, οὐδ' ἀπολήγειν
ἤθελες ἓν πάντων μὴ σὺ διεξετάσας
Τούτων ὅσσα πέρ ἐστι κεκρυμμένα· νῦν δὲ μαθήσει
ἄλλο τι καὶ τούτων μεῖζον ἀποιχόμενος.

I felt that the last words on such a scholar as Hogarth should breathe something of the spirit of Hellas; and, being no scholar myself, I applied to a scholar-friend at Cambridge, who immediately sent me the above quatrain, which Professor Myres has charmingly translated thus:—

Earth's myriad sights you loved, nor could you rest
All buried lore disclosing to the test
Of those sure eyes. Farewell; where now you go
More than Earth's mysteries it is yours to know.

THE RIO BRANCO, URARICUERA, AND PARIMA:

The third part, continued from page 223, of the paper read at the Meeting of the Society, 22 March 1926, by

DR. A. HAMILTON RICE

ON April 8 Arnold and McCaleb, with Raymundo and seven Makús under Rozendo, were sent forward with orders to advance to the great gorge 8 or 9 miles above Tokixima-huaite, and just this side of the Auari river, to get observations and time signals (see the folding map following p. 416). Next day the rest of the party followed, not until, however, the tuixaua with much reluctance delivered to me one of the remaining two ubás, which he was keeping for himself. From what I gathered he had told his people and the good spirit he had shown in helping with preparations and donating canoes, I had no misgivings as to the likelihood of the Makús deserting or backing out, once the expedition was on its way up-river. A great deal depends on the attitude of the tuixaua, who may give his men orders to desert at the earliest opportunity, or, on the other hand, instruct them to carry through an undertaking. His word is law, and once his goodwill is gained, one may rest assured that if the undertaking is possible it will be achieved. In little less than four hours the lower end of the gorge was reached, marked by a sandstone caxoeira. The gorge is narrow and tortuous, the river boils and swirls, flanked on either bank by high walls. The footing afforded on the polished blocks of sandstone is slippery and precarious at best, the crews having to debark and pass up the canoes at several points. Quong, the Chinese cook, and an Indian, not a Makú, in disobeying orders and not waiting to unload at a bad spot, had their canoe capsized and the canteen lost in consequence: forks, knives, spoons, plates, service dishes and kettles, with the exception of a few things which were taken up by Arnold and McCaleb the day before. Rozendo and Nicolau and two other Makús did splendid work helping the other crews pass their respective canoes. Camp was made on the left side of the gorge halfway through. From the first caxoeira up both banks are composed of red sandstone varying in size from pebbles and cobbles to great plinths and parallelopipedons, some appearing like masses of oxidized silver. The Makús call the gorge Kulaihia. Rain, the loss of the canteen, the nervousness of the men as to the possibility of the Indians bolting, all contributed to the gloom of the place.

On April 10, Good Friday, the trail was cleared over very rough ground on the side of the hill, and the next day spent passing the canoes up from the lower camp, one being lost by the line breaking. In the upper portion of the gorge are sporadic occurrences of conglomerates, the banks for the most part consisting of schists upon which rests the sandstone. The total fall is some 90 feet, about the same as that of Purumame, but Kulaihia is a series of rapids, not a cataract. On Easter Sunday

it began early to rain and continued dismal the entire day, piums being especially plentiful and fierce. The early part of the day the remaining cargo was portaged from the lower camp until rain put an end to operations, which were continued next morning, when at an hour after midday the journey was continued up-river, and 3 miles above the camp the mouth of the Rio Auari was passed. That stream comes in from the north, washing the base of the south-west face of the Maxauaka mesa that forms the left or west wall of Kulaihia gorge. Coming in on the right or east bank, just below the Rio Auari, is the igarape Aluhibaxi that delimits on the south the unconformable mass of sandstone called Damanahuika by the Makús and forms the east wall of Kulaihia gorge. Flanking the river a few miles to the south are the Uaxuiga and Gualikabaniga Serras. The opening between them is suggestive of a fault line gap. The face of each serra towards the river is the eastern limb or strike axis of the anticline whose longitudinal section or pitching axis parallels the river. Camp was made midway between the two serras upon low land on the left bank, opposite an island where the river ran swiftly.

Next morning we passed an igarape (Malapikuna) of dark water that comes in on the left before the Gualikabaniga serra is reached. An igarape (Komazali) of black water comes in on the right, and a short distance above the igarape Metika, black water, comes in on the left. While passing close to the left bank a beady-eyed, vicious-looking jararaca, ensconced on a limb hanging out over the water, feinted as though to board the canoe, and then thought better of it. Nothing so amuses the Makús as such performances; the pilot never fails to guide the canoe directly beneath the serpent, and then chuckles with glee at the discomfiture of the occupants. An hour before noon Umalaka 'mpo was reached, a swelling where islands and paranas convert the north bank into swamp, one of the paranas of which is said to communicate with Umalaka igarape. A short way above Umalaka 'mpo, where the river contracts into definite form again, a spot on the right bank was cleared for bivouac and breakfast, a stop of three hours being made necessary by the condition of the men (not the Indians), who were tired and hungry, two being in especially poor shape. A nourishing meal of soup, cujubim, peas, and tea put them right again, and 3 miles more were made in the afternoon, or about a mile farther than any of the Makús had ever ascended the river. Camp was made on the left bank in a grove of paxiuba high above the river. The bole of one of the trees, not a palm, was freshly scratched and cut with the long powerful claws of a jaguar all the way to its lowermost branches, some 30 feet from the ground. There is much umbaüba to be seen where the banks of the river are low, but the aninga (*Montrichardia arborescens*) disappears entirely in the Parima, in contrast to its ubiquitous presence on the Uraricuera.

The inajá and uassahy still flourish, the latter invariably associated

Assäihy caxoeira from the east: Serra Parima in the distance

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here, as on the upper Orinoco, with the paxiuba. Other memories are of the presence of cacáo and the interminable droning of mutuns. No castanhaes * were seen, though they are quite common on the upper Orinoco. Ducks were numerous, and great numbers of mutuns and cujubins were met with, until nearly the source of the river, where there was practically nothing to be found in the way of game.

Hills on both sides of the river marked the way next day. An hour and a half after leaving camp an igarape came in on the right, which was called igarape Paca; a paca † suddenly appeared, swimming the river from the right to the left bank; two hours above that igarape, a large one of black water comes in on the left, that was called igarape Inajá, as some fine specimens of that palm were growing on the right bank opposite the mouth of the igarape. Seven hours' hard work advanced the canoe flotilla to a point in the river where a great rounded mass of schist rises out of the bed, and both banks are high and wooded. Camp was made on the left bank. There is a sharp gorge-like turn of the river at this point.

On April 15, early in the afternoon, what looked like a high range was visible in the direction 230°, and the next morning, shortly after leaving the camp by the rocky ait, the outline of the range was again to be made out through the clouds in the same direction. Landing at noon on the high right bank, several fine cacáo trees were noticed, and early in the afternoon a short way above that spot, what looked to be a high serra, as discerned in the morning, was again visible. Six igarapes were passed, four coming in from the east and two from the west: the first four white water, the last two black. Camp was made on the right bank, where there were many paxiuba barriguda palms ‡ growing. A solitary hill beyond the left shore has a bearing of 292°.

Early next morning it commenced to rain, ceasing just before sunrise, but a heavy mist persisted for some time after the rain. Just above the camp an igarape of white water came in on the left. There was much canna brava § growing along the banks, and many paxiuba barriguda palms. The river was narrow, tortuous, and smoky grey in colour, except in bright sunlight where it appeared fawn, but it is darker than farther down. Three hours after leaving camp we reached a caxoeira made up of a series of rapids that took an hour's hard work to pass, the Makús giving a superb exhibition of dexterity and skill, pulling up the canoes by seizing overhead boughs, at the same time fending off with their legs from rocks and sunken boles. At the top of the last rapids, I espied a rock near the right bank, with a bight of cipo ‖ about it, after the manner

* Brazil-nut tree (*Bertholletia excelsa*).

† Agouti (*Dasyprocta*).

‡ *Iriartea ventricosa*.

§ Canna de frecha (*Gynerium sagittatum*), called ximala by the Makús—long tough, light rushes used for making arrows.

‖ A vine of the size and consistency of telegraph wire.

of the Guaharibos on the upper Orinoco, who employ such loops to carry a cable of the same material used in crossing the river. On the right bank, opposite the rock, a path came out, but its counterpart on the left bank was obliterated. A few minutes later, trailing in the strong current against the right bank, were the remains of a bridge resembling the one encountered on the upper Orinoco in January 1920.

I proposed to take advantage of the clearing for breakfast where the bridge began; João and Paje, two of the Makú Indians in my canoe, however refused to debark, though Nicolau did, and most of the others followed his example sooner or later. It was evident however that the Makús, with the natural dread of something unknown, and incited by the reports of the Maiongongs, were uneasy and apprehensive on the subject of Shiriana Indians. The river at this point was 112 feet wide, and there was 75 feet of the bridge left. The piles were strongly lashed to the trusses with cipo, and at either bank vines had been rigged at quite a height from the stouter trees to give added strength to the structure. The tree-stumps on either bank were not very old looking, and that on the right showed a surface as though made by some cutting instrument such as an axe. As a rule the Indians are always the last to take their places in the canoes after the midday nourishment and rest, but on this day they embarked early and eagerly. A demonstration with the Thompson sub-machine guns was given, firing from our bank to the opposite, and this helped to restore confidence and cheerfulness. The caxoeira passed in the morning just below the bridge was called Shiriana. A few minutes above the bridge is another caxoeira in a particularly bold and picturesque setting, high hills sloping steeply to the river, which rushes down through a wall extending mole-like diagonally across the bed from the right bank downstream. It has the appearance of a long obliquely trended dam, over which the main stream pours itself through a narrow opening on the down side. This was called caxoeira Li, the Makú for bridge. The ubas were passed up through one of the several spillways with which the travessão is breached toward the right bank, and camp made on a small praia on the left shore, a short distance above the caxoeira.

The next day (April 18) immediately upon embarking we encountered a series of correntados, corredeiras, and caxoeirinhas that necessitated the usual tactics of pushing, pulling, hauling, lifting, and dragging. The Makús again exhibited extraordinary skill, efficiency, and versatility with ropes, paddles, and poles, in combination with arm and leg work, and infinite resourcefulness in utilizing fallen boles and overhanging boughs to expedite the progress of the canoes. Steep hills on either side darken a naturally grim locality. Fast water continued for almost two hours after leaving camp, when we passed into a smooth stretch bordered by a level, clean forest. Close to the left bank was an old camp (tapery) and a collapsed bridge. The smooth stretch of water at its upper end was

Mouth of Rio Aracasa below Kujuma, Rio Uraricuera

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Meleagrina mallica at Kajiama

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terminated by a sharp, short right-angle bend, round which the water swirled—a bad corner for canoes. From there up for half a mile it is a narrow rocky passage, not 5 yards wide in places, a continuous series of remolinos * and remansos † up which the canoes were worked, not without accident, however, for two were capsized and the contents lost, such as foodstuffs, a chest of invaluable tools, a box of axes, ammunition and drums of the Thompson machine-guns, and personal effects of the men. At the head of the passage is a fine caxceira, called Purá by the Parima Shirianas, the travessão of which crosses the river 150° to 330°. The water was pouring through several gaps that existed parallel to the cleavage, running off through the flume along the same planes, to the sharp corner or elbow caused by a hill that deflects the river from north to west. Three hours' hard work was necessary, lifting the canoes over the travessão close to the left bank where conditions were more favourable for loading above the fall. There was good going above through a tortuous portion of the river for two and a half hours, then progress was delayed by a tapir coming downstream. The creature was shot by Raymundo during the few seconds it raised itself partially out of water upon a submerged tree-trunk near the right bank. It sank immediately, but two of the Makús dived and brought it to the surface, where a third slit its muzzle, inserted a seton of palm cord, and the carcass was soon on the bank being cut up. A heavy thunderstorm compelled us to camp, which was made on the left bank in a downpour—always a disagreeable proceeding.

A hard rain continued through the night, but the morning broke fine. Ten minutes after embarking an igarape coming in on the right was passed, with water lighter coloured than the main stream. Just above were two islands and a correntada with many rocks, the axis of the ledge running apparently 135° to 315°. Half an hour above the correntada a high steep bank of red earth, treeless, was being eroded away laterally, by a western swing of the river, and a short distance beyond an igarape of white water came into the river on the left bank.

After almost an hour's paddling above, another igarape entered from the right or east bank, its water similar in colour to that of the Parima stream. After two hours' work high hills were to be discerned toward the south, and half a mile farther an old camp (tapery) was seen on the left bank. Just above, an igarape came in on the same side, and as far above again and on the same side were a trail, a wrecked bridge, and a tapery. Two igarapes of white water came in on the right, a correntada interposed between them where the Parima ran over an outcrop of rock, whose strike was 135° to 315°. At noon a halt was made for breakfast on the left bank in a clearing made previously, as evidenced by the stumps of several medium-sized trees and the remains of a tapery. Within two

* Whirlpools, vortexes.

† Eddies, currents running back close to the banks contrary to the main current.

hours the party was working up-river again, passing almost immediately after embarking a correntada that raced over the exposed rock. Just above this on the right bank was the remnant of a bridge, and twenty minutes beyond another piece of bridge and what looked like a raft moored to the left bank. Some of the Indians affirmed that it was a bathing-float. Then followed two correntadas, and just above them an igarape of white water that comes in on the right from the south-east. Fifty-five minutes after leaving the breakfast bivouac we arrived at a large circular-shaped swirling pool, into which water poured through a narrow opening at its upper end, flanked by high and sombre hills.

This was the end of canoe navigation. Thunder was succeeded by rain, but from 3 o'clock until evening a few of us worked our way along the steep, rough, slippery right bank to see if navigable water existed above, up which the canoes could be worked. The river however was nothing more than a mountain torrent, marked as such on Stevens' map, its source a very short distance away. Camp was made on the left shore of the pool, close to the opening on a narrow strip of ground that sloped gently away from the base of the hill to the water. It was the only available ground suitable for camp purposes around the pool, and on the opposite shore to that where Stevens and Hinton had seen the house. As we were still in ignorance as to what the Indians of the region might be, watch was maintained through the night.

The next day (April 20) our Indians were put to work trail cutting, one path following the river and another directly up the hill, beneath which the camp was pitched. The second trail was carried in a south-westerly direction with the idea of attaining a suitable point from which the character of the country could be studied, and our position in relation to the source of the Orinoco determined, as we were aware that we were a long distance to the north-east of that locality. On April 21, a little before 11 o'clock, a start was made to search for the house seen by Hinton and Stevens, which, according to its location on the latter's map, was very near where we were encamped. In the big canoe with me were Wilshusen and the four Makús, Rozendo, Nicolau, João and Rodriguez, while Shattuck, McCaleb, Santos, and the two Makús Sampaio and Paje, and the negrito Antonio followed in the smaller one. The young Makú Dominguez refused to get into either canoe. Just below the pool we saw what looked like a conuco (clearing for cultivation) on a hillside on the right bank. This was immediately the subject of much talk among the Makús. The mouth of the big igarape was passed as well as a small one, immediately below which was a path where we landed. Advancing single file along the path that led in a southerly direction through dark forest, we had just passed a lofty big-boled piquia tree with huge sapupemas when suddenly the wild cry of the "Indio bravo" broke the tense, oppressive silence of the woods.

Two Makús, Sampaio and Paje, broke and ran back to the canoes,

but the remainder of the line held resolutely. The Makú João, who but four days before had refused to debark at the bridge, now stepped forward shouting replies to the calls, cry for cry, as hounds bay and answer. Suddenly an Indian stood out in the path a short distance in front of us, excited and apprehensive. The bow and three arrows in his right hand far exceeded his short stature, and beyond him, similarly armed, was a wizen-faced creature of lethal emaciation. Both spoke rapidly and tensely as apes chatter, tapping repeatedly their chests with their forefingers, reiterating in staccato fashion the Makú and Tupi addressed, as well as uttering strange calls that were answered by Indians appearing all round us. Their resemblance to primates was heightened by the swollen, turned outward effect of the lower lip, produced by the maligate or curved plate of coca* inserted between the incisors of the inferior maxilla and the mucus membrane of the lower lip. Their faces were platyoprosopic, their hair roaned and streaky with bristly tonsures over the occiputs : their eyes brown, sclerotics muddy ; noses broad and flat, with nasal apertures perpendicular to the septum, and lobes of the ears moderately developed. Handshakes and friendly advances on our part so reassured them of our good intentions that they laid their weapons on the ground, or placed them against tree-trunks. At the same time signifying by gesture that we were to remain where we stood, they disappeared, soon to return with their tuixaua (leader) and other members of the band, including two women.

The leader, in contrast to the others, was young, with a pleasant mien and good eye. He smiled when handed the machete, hatchet, and clasp knives as offerings of goodwill. The efforts of the others were confined to hideous grimaces. The two woman stood 10 yards or so behind the chief, one repellently ugly, each with her face smeared with genipapo.† From time to time they leered at us, stepping out from behind the tree they used as a screen. They were completely nude, as were the men, each of whom wore a cord of tucum fibre around his waist. The most striking thing was their light colour, by contrast with the olive-brown of the Makús. The tuixaua and others signified a desire to adjourn the meeting to the port where some of our men had retired, in order to bring back the two young Makús who had made off at the first yells, each having appropriated a canoe. Our newly found acquaintances strenuously objected to two things—further advance along the path on our part, and to any use being made of the camera Santos carried. Their wishes in regard to both were respected and rigidly adhered to in the hope that as soon as their confidence was won, their permission and willingness to

* *Erythoxylon coca*, analogous to the coca of the Peruvians and the ipadú of the Brazilians. In Peru the entire leaf is chewed ; in North Brazil it is used in powder form. The maligata of the Parima Shirianas before excised for jaw plates is of a fusiform shape, of the length and thickness of a good-sized spigot and the consistency of a hard plug of tobacco.

† *Genipa Americana L.* (*Rubiacea*).

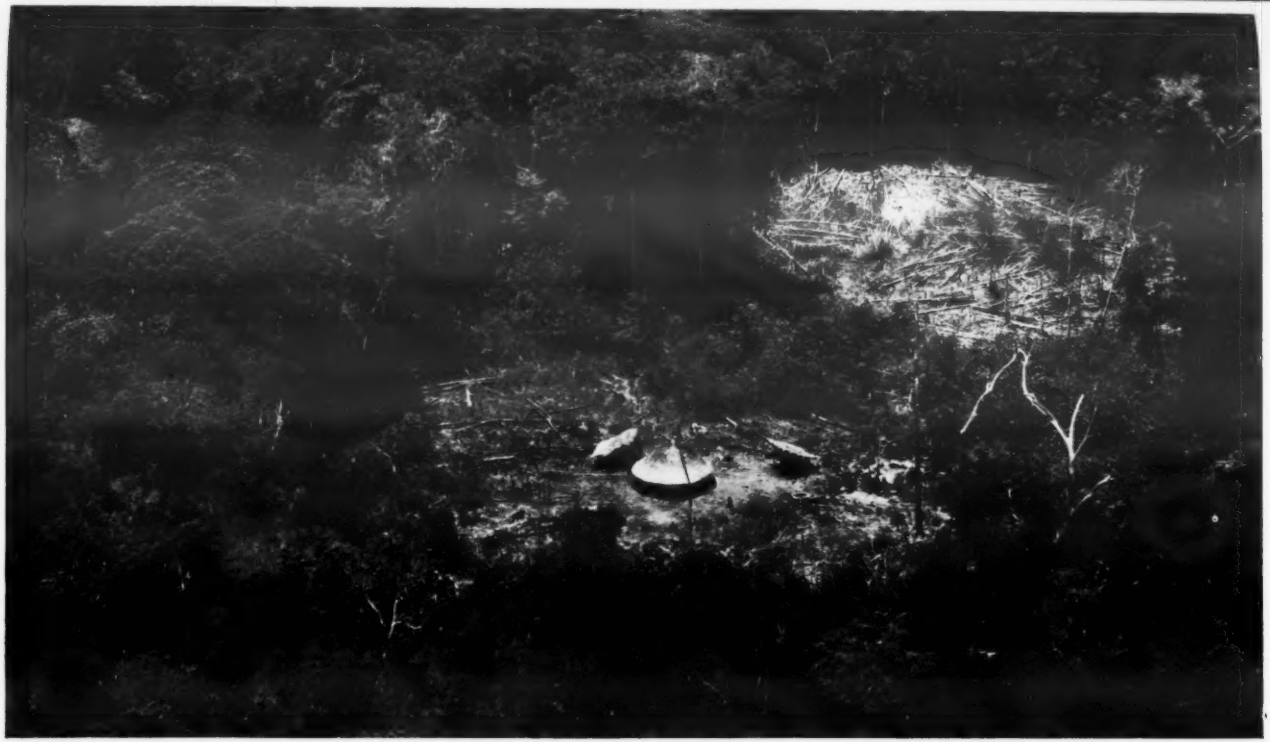
allow both would be vouchsafed. Each Indian either placed against a tree or laid upon the ground the bow, arrows, darts, and lance he carried, and fell in behind one of our men (South American Indians will seldom or never precede), and the procession retreated to the river. The canoes were inspected and boarded, but the clumsy, uncertain manner in which it was done immediately betrayed the Indians as forest, not river, people. The tuixaua was more ready and anxious to embark than any of his subjects, but was as ignorant and unskillful as any when aboard. He signified a willingness to ascend in the larger craft to our camp, but his followers refused to acquiesce, and two others were chosen as deputies. During the conference at the port a couple of the Indians brought several bunches of small miserable-looking wild bananas, a return offering for the gifts tendered the tuixaua, and some trading was indulged in, by which certain weapons, hammocks, baskets, featherwork and maligata (coca) were obtained.* The tuixaua followed the usual custom of personally conducting the negotiations, acting for and on behalf of his people, allotting the gifts of goodwill to those who, by reason of age or standing in the tribe, are entitled to the perquisites that are a part of such ceremonials.

About one o'clock we embarked for the camp at the pool, accompanied by the two Shirianas, whose going seemed to cause a certain amount of excitement and trepidation among the rest. The camp reached, the two visitors busied themselves in inspecting everything, kitchen, men's quarters (both whites and Indians), the cooking of the dinner, firearms, fishing implements, clothing—everything except the cameras, to which they had a seemingly terrified aversion. They willingly submitted to examination and comparison of their skins with the Broca scale † of colour, and with the Chinese cook Quong. Microscopes interested them, as did theodolites, compasses, watches, and stethoscopes, but cameras stirred in them fear and hatred. Each refused all forms and kinds of food offered, such as broth, fish, tapir meat, beijú, farinha, beans, salt, chocolate, tea, and coffee, signifying by simulation of vomiting what would happen were they to indulge. They partook only of their own bananas, some of which they ate raw, while others they roasted in the fire. During dinner they squatted beside the table.

What they wanted most was cloth, preferably white, with which to make loin coverings, a seemingly more important thing to them than shirts, though the old ones offered them they accepted gratefully and gladly. One of the instruments obtained from them was a crude sort of rasp or scraper, made of a peccary's tooth. Its use in connection with some bird was laboriously and energetically explained, but all to no

* These cultural specimens of a very crude, primitive, and heretofore unknown people are now in the Peabody Museum of Harvard University.

† Comparison with this scale showed their skins as ♯ 7, a dirty yellow, rather lighter than Quong's, the cook, a Chinese. The orthodox South American indigene is ♯ 4, an olive-brown.



Maku malloca and plantation, Tokixima-huaite

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Serra Uaimiti from the south : Serra Maiongong in the distance

purpose, as the motions and signs of the demonstrator became unintelligible in direct ratio to his excitement. What each had to tell about the hydroplane was narrated lucidly and interestingly by signs. The noise of the motor was imitated, the direction that the plane had taken was indicated, the circling around, just as Hinton and Stevens had described, were vividly portrayed to us, and apparently afterward the Indians had searched the forest immediately about them to try to find if something had been dropped. They seemed not to have been in any way terrified, but were apparently in hiding, as no signs of any living being were discernible from the plane, except the house, which both Hinton and Stevens affirm exists close to the spot where we encountered the Indians on April 21.

About the middle of the afternoon, the Shirianas were sent in the big canoe to their port. In less than half an hour canoe and crew returned with the two visitors and another. The three stayed until sunset, examining everything, submitting to measurements, and allowing strands of their hair to be cut, but they remained obdurate and forcefully resisted being photographed, foiling surreptitious attempts to do so. They were passed down-river in the big canoe, and were not again seen. Thereafter for ten days, until the beginning of the return journey, several attempts were made to locate them and their house. Sometimes the Makús went by themselves; at other times, accompanied by one of our men, the caburé Raymundo and the mulatto Antonio, all intent on finding the dwelling-place, if possible.

Most of the time and energies of the men were spent in clearing away a hill 3 miles south-west of the camp, so as to afford an eyrie from which to scan the horizon from the south around to the north-west, locating, if possible, the Pico de Lesseps of Chaffanjon. At the foot of this mountain the Orinoco takes origin. The first attempts were made to follow the river, but the steepness of the banks, which were nothing more than mountain-sides made up of rocks and mud, were treacherous and slippery, making progress extremely laborious and slow. The work told severely upon the men, already worn down by weeks of gruelling toil, and now subsisting on limited and insufficient rations. Physically, mentally, and nervously exhausted, stamina and morale still remained, but the food allowance diminished daily, and necessity was apparent for quick concerted action if the geographical information, so desirable, was to be obtained. It was hard pulling up the steep slope daily to the ridge which overshadowed the camp. For half a mile along the ridge it was much easier going, then a deep descent into a narrow valley and up the other side to the summit of a hill, where was our first look-out. This cleared away, a higher hill immediately to the south obstructed the view, so that the station was shifted to the second hill, and this in turn cleared.

On April 27, in a direction 218° from the eyrie, an eminence was visible beyond the last range outlined against the horizon, its rounded

Serra Caburiti from the south; Serra Maiongong in the distance

mass showing between a saddle-back of the range, as a forward sight on a rifle barrel appears in the slit of the rear one. It would never have been discernible to Stevens and Hinton from the plane, at the distance they were from it, nor did they apparently look carefully enough to the west, as Stevens' aerial photographs from the south around to the west end at 215°. The points discernible from the look-out are easily recognizable in the photographs, and are further checked by profiles sketched with direction lines to the more prominent features. Buried beneath the spot where the astronomical observations were taken are a small gold compass, a gold chain of sixteen links, some coins, a memorandum of the latitude, longitude, and date, together with a private yacht signal.* These, sewn up in Willesden canvas, and enclosed in a metal box, may at some time in the future be of interest in proving this location of Pico de Lesseps and the source of the Orinoco from the source of the Rio Parima on the eastern side of the Parima serra.

Any idea of attempting to cross overland from one point to another was futile, for the physical obstacles of such a piece of terrain, with ill-conditioned, worn-out men and depleted commissary, had, to the initiated and experienced in such things, but one inevitable end—defeat and disaster.

One last try to locate the house on the morning of departure, April 30, was unavailing ; but that there exists a house is irrefutable. We did not work far enough on the south side of the igarape, and the structure is farther inland from the main stream than one would suppose from where Stevens places it on his aerial sketch-map.

The Shirianas are not the fierce and intractable people that legend ascribes them to be, but for the most part poor, under-sized, inoffensive creatures who eke out a miserable existence, barely surviving the privations and diseases of a harsh and exacting environment, a very different nation from the bold and warlike Guaharibos, on the west side of the Parima serra. It is not unlikely that the Indians of Linepenone igarape and those around the source of the Parima are members of the same nation, and it may be that a trail exists from the mallóca at Linepenone on the Uraricuera to the caxoeira Li on the Parima, where were found the remains of the bridge, and from which point up-river were noticed many paths and taperies. A path south-west from Linepenone would skirt the eastern portion of the sandstone mass of Uaimiti, which unconconformably overlies the angle formed by the Uraricuera and Parima rivers, from Uaimiti caxoeira on the former to where the Auari river debouches into the latter, and it is of that sandstone mass that Kulaihia and Tokixima-huaite gorges of the Parima and the impressive picturesque cliffs of the upper Uraricuera are formed. It may be, too, that from the house on the igarape, just below Kurupira pool the Shirianas have some sort

* Flag of Denmark, favour to fly which was conferred on my kinsman, Capt. Benjamin F. Clark, by the King of Denmark in 1832.

of route to the Orinoco, a shorter distance than from Linepenone to the house, but over infinitely more difficult country to travel. Chaffanjon* declares having seen people around the base of Pico de Lesseps, whose description conforms exactly to the majority of Shirianas of the upper Parima, though his pilot Piapoco, a Baré Indian of the upper Orinoco, who accompanied me in 1920, invariably insisted they saw no people near the Orinoco source, and that when they turned back the river still maintained the character of a deep caño.†

Our return journey to Boa Vista was done in twenty days. From Tokixima-huaite to Kulekuleíma, all the Makús with their tuixaua Ketenari accompanied us. At igarape Linepenone the mallóca was found abandoned, the place devastated, and the banana patch ruined by an invasion of locusts. Farther down-river, at the bend by Moto-moto, Indians hailed us from the densely forested right bank. In camp there were the Linepenone community, or what remained of them.‡ The majority were in hammocks, too ill with fever to move or speak; others weak, emaciated, and starving. The sight was at once deplorable and piteous, a tragic phase in the perishing period of a forest nation doomed shortly to become extinct.

On May 9, at 8 o'clock in the morning, just above Assahy caxoeira, not far from the camp of March 13, where the plane was met on its way down-river, the party of twelve with three canoes, under Bento Coêlho, that left Boa Esperança twenty-six days before, was encountered. With them was Jesuino, the Makuxi who had departed down-river from Kujuma on March 23. Coêlho had first left Boa Esperança with nineteen men and four canoes on March 6, expecting to arrive at Kulekuleima in from seven to ten days, by the south or Maraca furo. After twenty-six days of hardships, wrecks, loss of supplies, and illness, he was compelled to return down-river long before Kulekuleima was reached.

On the afternoon of the same day as our meeting with Bento Coêlho and his supporting party we reached Kulekuleima, and a day's respite was taken to rest the men and to carry out some surgical work. The Makú tuixaua and his people descended no farther than that point, with the exception of seven of the original Makú crew that had ascended the Rio Parima. These accompanied us to Boa Vista, partly because they wanted to and partly to receive certain articles they were desirous to obtain, implements useful to them in their agricultural work and canoe construction, such as axes, mattocks, mandioca-ovens, augers, bits, files, and adzes.

The Makús conducted us to the west end of Maraca island by a different set of channels than those by which we had ascended, and

* 'L'Orenoque et le Caura: relation de voyages exécutés en 1886 et 1887.' Paris: 1889.

† See *G.J.*, September 1921.

‡ The same place where Koch-Grünberg encountered the Shirianas 20 January 1912. See 'Vom Roroima zum Orinoco,' vol. 1, pp. 198–200.

the passage of the south furo from there to Boa Esperança occupied three days. Difficult as was the north or Santa Rosa furo ascending, it is a more navigable route than the south or Maraca furo, whose seven major caxoeiras and infinite number of lesser, bad enough descending, form heart-rending obstacles to any party working up stream. There are also long stretches of fechado * and terroado,† and places so narrow, water so shallow, vegetation so dense that rocks must be prised away, canoes dragged, and passage-ways slashed. Toward the western part of the south furo there is a great bay and many islands. The intricate plexuses of channels coming in from everywhere and going nowhere form a *rete mirabile*, confusing and inextricable to all but an Indian. No more than two canoes of the squadron of seven were ever together during the day, nor did more than two crews camp together. Dantos, ascending from Boa Esperança, was met by only one of the canoes of the descending party. The crew of that canoe, at the time, was trying to locate where they themselves were, and where the others might be. Farabee's experience and what Hinton and Stevens from the hydroplane observed and reported were more than vindicated later by Coêlho's struggle to ascend the furo, and our striving to descend. In no part of South America does another such river exist.

DISCUSSION

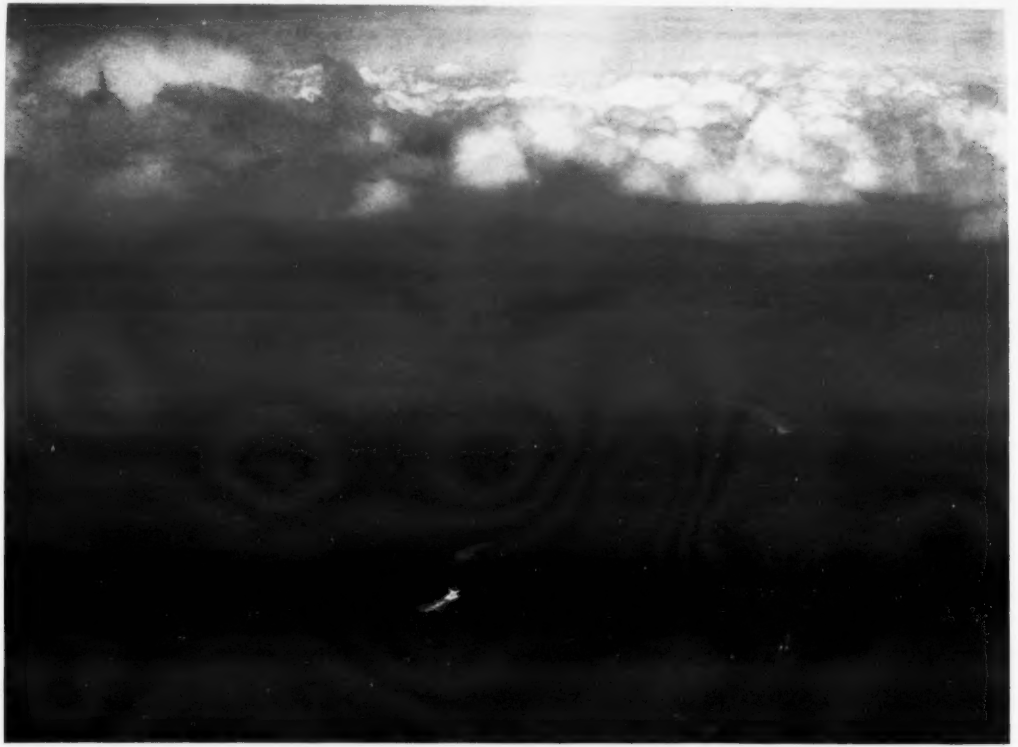
Before the paper the PRESIDENT (Dr. D. G. HOGARTH) said: It is hardly necessary for me to introduce to the Society one of its Gold Medallists. Dr. Hamilton Rice is very well known to the Royal Geographical Society, and he, on his side, knows us very well. He is a Gold Medallist of so long ago as the year before the war; and even if he was not known to you on that account he has become known for the way in which he has introduced the last refinements of science into the most remote tributaries of the Amazon. The wireless messages which he has sent have thrilled public imagination, and quite rightly; for it is an extraordinary thing to think that with a little instrument working in the depths of the Amazonian forests he has been able to communicate with this country and also with the other side of the globe; that is to say, with New Zealand. Dr. Hamilton Rice is among the foremost scientific explorers of the present time, and no one has devoted more constant attention to a particular circumscribed region than he has. I believe he hopes within his lifetime to explore all the tributaries of the Amazon. Up to the present time he has completed an instalment of that, and he tells me that he has finished the particular district which he is going to describe to-night. He will have a great deal to say from various points of view, since he proposes to sketch the whole history of the expedition. I will therefore not stand longer between you and him, but ask Dr. Hamilton Rice to at once begin his lecture and to show the film.

Dr. Hamilton Rice then summarized the paper printed above, illustrated with a remarkable series of kinematograph films, and a discussion followed.

The PRESIDENT: Would His Excellency the Brazilian Ambassador like to speak?

* *Fechados*—passage-ways of water that are arched over by canopies of impenetrable vegetation, which growing very low form menacing barriers to navigation.

† *Terroados*—the caños and swamps of the fechados.



Kulaihia gorge, Rio Parima, from the north

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Serra Parima from the NNW near source of Rio Parima

Senhor RÉGIS DE OLIVEIRA (Brazilian Ambassador): I should like to say how immensely grateful I am to Dr. Hamilton Rice for having, to a certain extent, introduced me to a part of my own country. I thank him ever so much for having shown us all its beauties and by his charming speech all the poetry that is to be found there. But I must also congratulate him on the strenuous work he has undertaken and the marvellous resistance he has shown in making the journey; especially in overcoming the enormous difficulties met with on such an expedition, and all for the good of humanity as represented by the knowledge acquired. I thank Dr. Hamilton Rice sincerely, and, Mr. President, may I thank you for the kindness you have shown me in asking me to meet Dr. Hamilton Rice?

Dr. HAMILTON RICE, replying to a question asked by a Member as to how he had determined latitude and longitude, said: Some years ago Mr. Hinks wrote an interesting book entitled 'Maps and Survey,' in which he said he saw no reason why the method adopted in navigation for determining latitude and longitude should not be used on land as well as at sea. In 1919 Chester Ober, of the United States Coast and Geodetic Survey, and I attempted this with a theodolite on average evenings and found that our results for longitude were very favourable compared with those obtained by the time-honoured methods of east and west stars. Next Mr. Reeves got to work and devised the small attachment to the theodolite which turns it into a prismatic astrolabe, and gives all the advantages of the method devised by Claude and Driencourt, and perfected by Ball and Knox-Shaw, without the necessity of carrying a separate heavy instrument like the astrolabe. These methods are bound to give a tremendous impetus to quick and accurate exploratory and geographical survey. A great advantage of the method is that on cloudy evenings when there are but few stars visible it is possible to get both latitude and longitude, and those with accuracy. I have many times experienced great disappointment and delay when limited to the old method, but with the new if there is any chance whatever one has it, and in country such as I have been describing, with its continual atmospheric changes and cloudiness, it is a tremendous boon.

The PRESIDENT: The hour is rather late, and the audience has, through the exigencies of their own travel needs, so melted that I think we had better now close the proceedings by expressing to Dr. Hamilton Rice our very cordial appreciation of the remarkable endurance, the power of organization, and the patience which brought success to the expedition. I do not know that I have ever seen any such record of human endeavour as Dr. Hamilton Rice has given us. I am sure those now absent as well as those still present would express in the most cordial manner their sense of gratitude to Dr. Hamilton Rice for what he has told us.

Dr. HAMILTON RICE: I on my part ought to express, and only justly, how much I owe to all those who worked with me. It was due to their efforts that success was attained and the objects of the expedition achieved. Never was an explorer helped by a better trained set of men or more efficient, and never was a more splendid spirit of cooperation and loyalty shown than by those associated with me.

Serra Parima from the N.W. near source of Rio Parima

THE UPPER WATERS OF THE BLUE NILE: *A paper read at the Meeting of the Society on 21 November 1927 by Col. H. S. L. Winterbotham in the absence of the author,*

MAJOR R. E. CHEESMAN

MANY books have been written on Abyssinia—some good, some bad. The latter far outnumber the former. On arriving in Abyssinia I found that some 500 miles of the boundary of my area was marked on the map by dotted lines. This dotted line, indicating uncertainty, was the course of the upper reaches of the Blue Nile which in Abyssinia is known as the Abbai. It seemed strange that one of the most famous of the rivers of the world, and one whose name was well known to the ancients, should so long have been neglected in its upper waters. One naturally seeks the literature of a subject as interest arises, and here I was sadly disappointed. Numbers of European travellers had seen the river at different points, many had crossed it, following each other along well-known Abyssinian trade routes by the usual fords, but first-hand and consecutive accounts of the river, the topography of its valley, its tributaries, and names of the subdistricts and districts through which it passes were unobtainable. The maps were equally disappointing; the information an intending traveller requires was not there, and even that of the surrounding country was most sketchy. One could not tell whether one's next day's march would be one map mile scaling or descending precipices or 20 miles on the flat. No one had previously travelled down the Abbai valley with the intention of mapping it, and present-day charts of it have been compiled from notes and loosely made route reports of big-game hunters, gold prospectors, and other travellers whose attention was turned in other directions. It is, in the circumstances, surprising that the cartographers have been able to fit them together and make as good a map as they have, but in using this one is constantly coming on villages which are marked as districts, rivers which flow the wrong way, districts which do not exist, and so forth, the correction of which takes infinitely more time than filling in a blank space on the map would. I found the detail more accurate near the fords of the few big trade routes which cross it. Another contributory cause of inaccuracy is the vagueness of mind of the local guide; he seldom knows the country outside his own district.

If the Abbai valley had been neglected, the mountains of the high plateau had not, and the work of Monsieur D'Abbadie, a French geographer, must take pride of place. He was working for twelve years on a triangulation of this part of Abyssinia, and in 1846 and 1847 was in Gojjam. His base was somewhat far off in Massawa on the Red Sea, so his longitude, in spite of a careful latitude and azimuth traverse, may still need correction. Yet his positions have stood the test of time and are accepted to-day as the most reliable. As long as I was in sight of

one of his high points, I was able to hang my compass traverse on to his work with the greatest success. The next in importance is the triangulation of the Sudan–Abyssinian Frontier in 1899–1909 by Major Gwynn. My traverse touches his points towards the westward. Unfortunately, these two men's work, on which official maps of the area under review are chiefly based, had no common points within it, and their bases being far apart, there was a closing error between the two which had to be adjusted. Thus, when I arrived at the Wanbera district I was obtaining back bearings on D'Abbadie's hills and forward sights to Gwynn's hills on and near the Sudan frontier, and in plotting this and comparing with maps the closing error became apparent. It has taken so long to search out the few papers which have been written on the Abbai valley and which have proved useful to me, that it may be worth while mentioning the more important for the assistance of others. They are :

1. " Notes on a Journey from Zeila to Khartoum," by Oscar T. Crosby (*G.J.*, July 1901). This American traveller gives a short description of the country from Gumar east of Gum Mountains, through Wanbera to the frontier.

2. " Exploration in the Abai Basin, Abyssinia," by H. Weld Blundell (*G.J.*, June 1906). He travelled along the country south of the Abbai and made several descents to the river, and crossed it once and re-crossed it again in the Wanbera district. His narrative is concerned chiefly with ancient history of the tribes and place-names ; but the occasional geography and the map were useful. He took some latitudes by sextant, but I was not able to make them conform to mine of the same districts.

3. Colonel Lewis, a Sudan official, travelled in the Wanbera district in the year 1903, mapped the Abbai from the frontier to Dabok ford, and did some surveying—probably compass and sextant ; but I have not been able to find that any account of his travels was ever published. His material, however, was used by Major Gwynn in the compilation of his frontier map. My latitude for Wanbera town and that of Colonel Lewis are almost identical.

4. " W. N. MacMillan's Expeditions and Big-game Hunting in Southern Sudan, Abyssinia and East Africa," by B. H. Jessen, 1906, a Norwegian, describes the ill-fated expedition of the Autumn of 1902 and Spring of 1903 in which MacMillan, an American, made the only serious attempt to explore the Blue Nile by boat from the Mugr River junction to the Sudan. Three steel boats, built in sections, were taken *viâ* Jibuti and Addis Ababa to the Abbai at its junction with the Mugr and there put together and launched. The boats' crews, Somalis and Abyssinians, seem to have been inexperienced in the handling of boats, and no preliminary reconnaissance of the river had been made except for a mile or so downstream. After they had gone a few miles they came to a bad cataract, curving into an S shape around rocky points, and one boat upset and the other sank, and the expedition, having been

deprived of its stores and ammunition, returned to Addis Ababa. In the latter part of the same volume Jessen writes the best account ever given of the Abbai. For one thing, he is the only man who has ever succeeded in following it closely for any distance; he travelled for some 200 miles along its banks from the Sudan frontier. His intention was to see whether it would be possible to get a boat up or down the Abbai.

He had had experience of cataracts and their passage, for two years previously he had piloted a small launch from Khartoum through Roseires to Famaka, which is 12 miles downstream of the Abyssinian frontier, with the idea of meeting the boats which were expected to bring the Macmillan party down. Their end has already been mentioned. Jessen's launch was 39 feet in length, beam 6 feet 6 inches, with a mean draft of 24 inches when loaded. It burnt either wood, coal, or crude oil, had a powerful acetylene searchlight, and towed a punt with supplies. He left Khartoum on 8 May 1903, reached Roseires on May 30, got through some bad cataracts upstream of Roseires, but was defeated by the Famaka cataract on June 12, and was finally recalled *viâ* Khartoum.

This led to another journey on foot by Jessen in 1905 to explore the Blue Nile from Famaka up to the Gudr River, and a run down (as he himself calls it) the river in specially built boats was again to be attempted by Macmillan if it was considered possible. He started again from Khartoum on 24 February 1905, and left Famaka on April 17. After an adventurous journey he was driven at last away from the river and on to the high plateau by precipices in the neighbourhood of the Gum Mountains, and reached Addis Ababa on June 25. His sketches and descriptive narrative of the river are good. His map was not an independent survey, but he made small additions to published maps of the time. He was placed at a disadvantage by having negro guides who could give him only the names in their own or the Shankalla language, and therefore his places and rivers often cannot be identified on maps by other men who obtained place-names from Abyssinian guides. It appears to me, also, that on both occasions he increased his difficulties by starting at the wrong season of the year, when the river was low, and mule fly and malaria in the lowlands would be at their worst; whereas had he got away from Famaka in December his misfortunes in these respects would have been considerably lessened.

He found the Abbai in May to be a smallish river over which, he says, a child could throw a stone in places, and with such a rocky bed and succession of cataracts every few miles along the section he saw, that its passage by boats is an impossibility at any season, in his opinion.

My chief objects in travelling along the Abbai were to see the river in its various reaches, with a view to ascertaining its possibilities for travelling down it by boat, and to see its tributaries. Within a day of the start I realized that an even more pressing preliminary would be required of

me—the re-mapping of the whole valley. I determined to do both as well as I could. It is not surprising, therefore, that instead of the two months I anticipated spending on the journey, it occupied more than four.

The source of the Blue Nile is a spring at Gish Abbai in the mountainous district of Sakala. The stream runs northward at first, and by the addition of numerous tributaries soon becomes a considerable river, and is called the Small Abbai by us; but Abyssinians do not distinguish it by any such name. Thus it runs 60 miles into lake Tana, a magnificent inland sea, some 40 miles broad by 50 long, and about 6000 feet above sea-level. The overflow from Tana issues at the south-east corner of the lake under the name of the Abbai, or in English the Blue Nile. It is a matter of choice whether the spring at Gish or the outlet of the lake is considered as the source of the Blue Nile. The Abyssinians have decided it is the spring: a legend has been woven about it, and the waters, which are in the charge of priests, are considered to have healing properties. Although the course of the Small Abbai has never been closely followed and mapped, it runs the whole distance on the almost level high plateau. It has been crossed and viewed from several places, and the dotted line on maps indicating its position cannot be far out. We are not concerned here with the Small Abbai or the spring, but a note as to its early discovery may be useful for reference. The first European to place it on record was Father Jerome Lobo,* who says that Father Peter Payz, a Portuguese Jesuit, saw the source on 21 April 1613. D'Abbadie in his 'Twelve Years in High Abyssinia,' p. 230, mentions that the discoverer was Pedro Paëz.

It will be remembered that James Bruce, the traveller, in the years 1770 to 1773, saw the spring at the Gish, and, not being aware that he had been forestalled, thought he had discovered the source of the Blue Nile, and not only that, but of the White Nile as well, and was much disappointed when, on his return to Europe, he was disillusioned by Monsieur D'Anville in Paris on both points. Neither Paëz, Lobo nor Bruce appears to have travelled down the Abbai in the bottom of the valley, but obtained a good idea of its general direction from native information. Lake Tana is well known; the outlet has been recently visited by several British Missions, and full information on the subject can be obtained by any one interested from Mr. G. W. Grabham's excellent publication.†

Thus the little-known part of the Abbai's course began about 5 miles below the Tana outlet and continued some 500 miles towards the Sudan frontier, and it was this towards which my eyes were turned. The Sudan Government approved my request to make the journey, and to

* 'A Voyage of Father Jerome Lobo—A Portuguese Missionary, with fifteen dissertations by M. le Grand'; translated from the French by S. Johnson. Published in London 1789, p. 209.

† 'Report of the Mission to Lake Tana, 1920–21,' by Messrs. G. W. Grabham and R. P. Black. Government Press, Cairo, 1925.

use the Consulate Staff, mules, and equipment for the purpose. The British Minister at Addis Ababa, Mr. C. H. Bentinck, obtained the permission of the Abyssinian Government through the Regent, His Highness Ras Tafari, who sent instructions to Ras Hailu and Dejazmatch Ai'al'u, the two chiefs concerned, to give me any assistance while in their territory.

I will not interrupt the narrative by describing the difficulties of travelling. The incidents that appertain to a day's march on an Abyssinian so-called trade road have been treated with ample justice in previous literature ; the proportional increase that takes place when you leave the beaten track and take to village-to-village paths and cow tracks across a mountainous and precipitous valley, can be imagined.

The party consisted of my Abyssinian clerk, Tsahai Dasta, and one of Ras Hailu's household officials sent with a pass signed by the Ras to arrange for guides, food at the villages when there were any, and other matters with local Abyssinians, small chiefs and officials. I had one Sudanese N.C.O., two police, and one Sudanese cook, all mounted on mules. It was fortunate that I had the Sudanese with me, as later, when the valley became some 3000 to 5000 feet deep, my Abyssinian muleteers, of whom two had already died of some epidemic, were afraid, and absolutely refused to descend into the lowlands. I had perforce to leave them on the highlands with the loading mules, and make descent to the Abbai level with the clerk and the four Sudanese.

We started with 30 mules (including riding-mules), 15 muleteers, 2 mail runners, 1 head muleteer and a boy for the cookhouse mule, all Abyssinians from the highlands, but specially engaged for the low country at extra pay. The Abbai was reached on 2 January 1927. We struck it at Tisisat some 20 miles downstream of the outlet, because I had been able to travel down the reach between Tisisat and lake Tana in the previous May. The road follows the right bank closely, and owing to numerous cataracts it is better seen on foot than by boat. Tisisat is a magnificent waterfall where the Abbai hurls itself over a precipice some 200 feet high. The photographs of the main falls, taken on May 11, from the right bank on a halfway shelf at the driest season or at low river, make an interesting comparison with those taken on January 6, when the flood is on the decline or say half high flood. It was impossible to reach the shelf on the second occasion, so the photograph was taken from the left bank. Above Tisisat the river flows in a fold in the ground on the level high plateau ; below the falls it enters a ravine which increases mile by mile until it becomes a huge rugged valley, with mountains each side towering some 6000 feet above the water-level, and from 6 to 10 miles from side to side. In the bottom of the valley the river has, in places, cut a narrow ravine by erosion with cliffs often 400 feet high, and the water is often invisible until you stand on the cliff edge over the top of it. The gravel bed which is formed by the rainy season flood stream is

Abbai spring and church

The small Abbai at ford

Igr Bar ford at Lake Tana outlet

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Tisisat main fall

The Tisisat gorge, from halfway up cliff

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much broader than is required for the half-flood season at which I saw it; the channel therefore winds about within the river-bed.

Thus there are three distinct river valleys, the small winding channel, the self-cut ravine, and the gigantic main valley. The first two may undoubtedly be attributed to water action, but I consider that the main valley looks tectonic rather than a valley of erosion. The river falls into it at Tisisat and cannot get out until it emerges from the last mountain range, near Siribanti, 350 miles distant. From here to the Sudan frontier the country is not mountainous, but the river winds through undulating broken country with forest-clad hills. The tributaries joining the Abbai within the mountainous area are also in deep valleys at their mouths, and to travel along the Abbai banks one has a continual obstacle race, passing up and down these huge chasms. The descent of one may occupy one day: in fact, a mile a day on the map would be a good average in places.

Most of the perennial tributaries on the right bank of the Abbai rise in the Chokai Mountains, a high mass with peaks 12,000 feet above sea-level, standing on the high plateau from 7000 to 8000 feet above the sea. The Abbai circles almost completely round this range. Major Powell-Cotton has well compared it with a wheel, of which the Chokai Mountains are the hub, the Abbai is the tyre, and the tributaries are the spokes. On leaving the foot of the mountains the rivers flow gradually downwards in folds in the ground across the plateau for perhaps 20 miles. When seen here they much resemble an English downland stream. The low retaining banks are thickly lined with willow trees; on each side are meadows of grazing cattle, and also wheat and barley fields, and many Abyssinian villages; a rich agricultural country with a delightful temperate climate all the year round. Within 6 to 8 miles of the Abbai the stream meets an outrunner of the big valley, is hurled headlong over a 1000-feet precipice often with a sheer drop of hundreds of feet, and within 3 miles is in an imposing valley of its own, with sides from 3000 to 5000 feet deep, and hastening into the Abbai. The climate in the lowlands is tropical.

In almost every case the stream seems too small, even in flood, to have caused such a chasm in the earth. In some of the chasms the stream falls over the side, and the head has no river flowing into it, and I even saw others that have no stream running into them at all: if they are not tectonic, they would appear to belong to a different system of drainage. Again, if the valleys are water formed, the entrance of the water should have worn off the top of the precipice, and by now the descent would be by a gradual incline; but they are nearly all perpendicular cliffs. Moreover, these high cliffs are more often than not of solid hard basalt, on which the small ribbon of water falling down does not seem capable of making any impression whatever. I think the Abbai valley and its affluents starring out in all directions will be found to have a volcanic

origin, and that water has had no hand in it; but the decision rests with the geologists.

We must now return to Tisisat Falls. The word is derived from the Amharic *Tis*, smoke; *isat*, fire, from the clouds of fine spray that float away from the foot of the hills. The river above the falls, one of the broadest reaches of the whole 350 miles I saw, is some 400 yards wide: the depth was not ascertained, but there were hippopotami diving out of sight in it, so that it must have been considerable, and I shot a small crocodile. The speed of the current is almost imperceptible, the fact being that the ridge of rock which forms the falls also banks back the water to form a lagoon in the river-bed. Dildi Bridge (the First Blue Nile Bridge of English travellers) is but half a mile downstream of the falls. There the river has fallen into a narrow gully but 7 feet across between solid rocks, and it is difficult to believe that it can be the same river, and that the volume of water seen at the falls can actually be passing this spot. An Abyssinian is said to have once jumped across from rock to rock during a local war, killed his man, and jumped back; he was created a Nagadras on the spot by the Emperor Menilek. It is quite conceivable this is true: from left bank to right, being a slight drop, would be easy, but jumping up on the return would be rather more difficult, and a slip would mean certain death in the roaring torrent below. I estimated the water speed at 12 miles an hour, depth unknown. On January 5 the gully and one arch of the bridge was taking all the water. In the high flood—July, August and September—the water would rise out of the gully, and the other arches of the bridge would be used; but the river would still be contained in its channel cut in solid volcanic rock, and would be some 50 yards wide. The high-flood level is shown in the photograph by the vegetation limit.

The process by which, to a certain extent, the carving of the channel takes place in solid lava rock by the Abbai and some tributaries is worth notice. The rock surface is honeycombed with large circular pot-holes: on looking inside, one or more rounded pebbles, usually the size of large potatoes, are seen, and it is evident that when the flood descends at speed these pebbles are forced to revolve, and grind out the cavities. They can be seen at all stages of formation.

During the May visit it was possible to climb down the steep face of the ravine on the right bank of the falls and, by passing behind the water of the side fall, gain the shelf in the middle of the main fall. Our climb down was along a narrow ledge, and we had to assist our balance by holding to trailing creepers. The Sudanese N.C.O. who was behind me laid hold of one which moved with him, and he found he had a 6-foot python by the tail! An Abyssinian stunned it with a blow from a long stick, and after we had battered it on the head we heaved it off the precipice on to the rocks 80 feet below. On gaining this rock about

Bridge over the Abbai, Dildi

The bridge at Sabera Dildi

The Abbai at Wanzagai

Tammi-Abbai junction

half an hour after, we found it had recovered and crawled away. Flocks of Abyssinian Red-winged Starlings (*Onychognathus morio ruepelli*) were seen flying in and around the rocks of the cliffs: their whistling note was very musical.

Those of Tisisat are the only falls of any height in the whole course of the Abbai. We left Tisisat on January 7 and arrived close to Sabera Dildi (Broken Bridge; English, Second Nile Bridge) on January 14, although only 24 map miles distant. The Abbai was followed closely along its banks the whole way, and though the valley increased in depth, or the hills on each side were higher, they could hardly yet be called mountains. At one spot there is a bend in the river, the water forms a pool, and issues almost at right angles. It is called Gindazur, or timber catcher. The logs and fallen trees brought down in flood are unable to take the bend and, shooting to the other side of the pool, are piled up on the shore, which, after the fall of the water, resembles a large timber yard.

It is not possible to mention all the tributaries passed, but the Abaya river, which is the first to come from Chokai, is the largest between the two bridges, and is moreover in a steep-sided ravine of its own, which is very difficult, and has never before been attempted with loaded mules. Sabera Dildi, recently mended, is like the bridge at the other Dildi; both are masonry and were built by Portuguese masons. They carry trade routes, and have been described by numerous travellers.

We left Sabera Dildi on January 18 and arrived at the Tammi river on January 22. We passed a place at Gumari where the Abbai, according to native lore, has changed its course, and instead of going to the north of the hill as formerly, curls round to the south of it. I could see the disused section distinctly, so have little doubt the natives were right. They said the change took place before their time.

The precipitous sides of the Tammi valley were appalling, and the track, though reported possible but difficult for loaded donkeys, was out of the question for mules. I brought specimens of the rocks forming at any rate part of the cliffs of the Tammi, and they have been identified as basaltic lava: it breaks up quite easily. I rode down to examine the track, and decided after visiting the Abbai at the Tammi junction, to take my caravan on the high plateau round the Enabsi mountains, and regain the Abbai downstream of them. The whole length of the Abbai between here and lake Tana was so full of cataracts that a descent by boat would be practically impossible. With money and time, of course, anything of this kind could be done, but I now estimated that if these conditions continued for the whole 500 miles, a boat party would have to be prepared to spend five years on the journey, and would expend £5000. After I had reached the Siribanti mountains three months later I had reduced the estimated time and increased the expenditure. I hoped, however, that my report would enable any section of the river

to be examined more closely, if for any particular object this became necessary, and that my map would further be of assistance. That is, if for instance a 10-mile reach were to be examined it would be possible to make a base with mules and Abyssinians on the high plateau, while a party with donkeys and Sudanese would descend to the bottom of the valley, work along the shore, or cross to the other bank, and come up again at a pre-arranged spot, where the mule party would have formed another base and await them; the "pre-arranged spot" would have presented difficulties on the old map.

I also realized now that, if I was not going to spend the whole of my time in getting through one or two mountainous districts, it was imperative that I should get on to the plateau and move faster: my instructions were to cover the whole course of the Abbai if possible. Another drawback of moving in the bottom of the valley is that one can see very little but the sky and a few neighbouring hills, indistinguishable from the next, so that mapping and picking up commanding landmarks is only possible as you move along the high edge of the valley. We left the Tammi on January 26, and after a week's delay on the top, while the clerk searched the country for five new mules to replace casualties, we got near the Abbai once more below Dibo. I made a special journey and stayed one night to obtain particulars of the Abbai at Daga ford, taking only a small tent, clerk, two Sudan police, Sudanese cook, and three local Abyssinians as guides and muleteers. The descents to the river-level were now considerable: at Dibo it took five hours.

Speaking generally, although I have repeated these special journeys four more times at intervals where I thought conditions might have changed, there was very little difference between them. It was always the same steep bank; cultivation and villages were found for the first 1000 or 2000 feet; below that was uninhabited forest. The river, although joined by tributary after tributary, seemed to get no larger. Occasionally a wider and deeper reach was seen, and one hoped for a change and a bigger river at last, but on going downstream it was invariably found that the cause was a ridge of rock, over which the overflow revealed that the river at this date was still little more than a mountain brook. In each case the course was visible for only half a mile up and half a mile downstream. On the bend was usually a cliff of red and brown sandstone, about 400 feet high, with the water swirling round its foot, and as this happened on alternate banks, there was no possibility of following the banks on land, and also one never could go far up or downstream without meeting a cataract which would wreck a boat. At each visit to the Abbai a rough estimate of the width, depth and speed was made; as for the tributaries crossed, the details are given in an Appendix. My route was confined to the right bank, but a certain amount of information as to locality and size of left-bank tributaries was gleaned from natives, and some were seen and fixed by bearings.

Leaving Dibo on February 8, we experienced difficulty in crossing the Chai Valley, another deep ravine, and arrived at Bichana on February 12, where Ras Hailu was staying; and as I had some affairs to talk over, we did not leave until February 16, and then gained the Abbai once more at Shita, where with the same arrangements as before I descended to Baranta ford. Leaving Shita on February 20, we camped on the same day at the head of the tributary gorge into which the Suha river falls.

A photograph shows the high plateau country and the broad head of the gorge with the top of the solid rock cliff, down which the Suha river is falling in two narrow ribbons, so small as to be almost invisible a quarter of a mile away. On each side of the water are cliffs of exactly similar formation over which water never can fall. We left Suha Camp and reached Dejen the same day. From here another descent was made to the Shefartak ford across the Abbai: this being on a main trade route to Addis Ababa, it is well known. I saw this ford again, and crossed it on my way to Addis Ababa on May 22, and noted a considerable fall in the water during the interval. On the second occasion from a camp in Jarso, high up on the left bank, I was able to get cross bearings on many points on the right bank, and make sketches which have been useful in the compilation and checking of my map. At Dejen the Abbai is making its big sweep westward.

Unfortunately, all astronomical observations were impossible here, as the sky had been cloudy since we left Enabsi, and continued so until March 29 at Kolaj, when I could again work on the stars. My chronometer, which had not been rated since leaving Khartoum Wireless Station more than a year before, was eventually found to be working so erratically that all observations for longitude on east and west stars have proved to be useless. In the present day, unless field wireless apparatus is taken to rate the chronometer by time signals, such work is a mere waste of time. The latitudes taken from the Pole Star, which are little affected by time, were used in this map, as they could be accepted.

At Dejen a certain change is noticeable. It is probable the fall of the river is becoming less steep. The hippo pools are becoming more frequent: the first seen was at Shita. Here also men in caravans fire off rifles to scare crocodiles, before attempting to drive their animals across. A full-grown crocodile was seen for the first time on a sand-bank just below the ford. Upstream of this, natives had been seen crossing the river without any preparation. It is true I saw big hippopotami in the pool above Tisisat, and also a small crocodile; but this lagoon is an exception. It is probable, from the paths and big spoor noted, that during the rains when grass is long and Abyssinians are driven from the banks by fear of fever, the hippopotamus ranges over the whole length of the Abbai. I have seen them in lake Tana, but no crocodiles have been reported there, probably owing to the lower temperature at that altitude.

Another indication of change was the first appearance of the Egyptian Plover (*Pluvianus ægyptius*), a species associated more often with the sandbanks of the lower waters of the Nile. All these together have led me to the conclusion that we have a slightly different river from now downwards. At Dejen the vast amount of evaporation that takes place was brought to my notice, although it had been gradually dawning on me for some time. In a photograph the main current can be seen hugging the bank on the right side of the picture. The gravel foreshore shown in the foreground has areas just level with the top of the water, which flows over it slowly in a thin film half an inch or so deep. The temperature of water and air taken at Baranta ford: water before sunrise 70°, air temp. same time and place 65°; Baranta 2 hours after noon, shade temp. 95°; in sun on rocks of river-bed 127°; water temp. in current at sunset 78°; air temp. after dark 84°; will give some indications of the conditions at Dejen. I noted the air as humid by the river-side, probably owing to the evaporation going on, as the atmosphere a little way off is bone dry. The loss of water over these heated gravel expanses must be enormous. There is in addition the loss on cascades and cataracts, and a heavy absorption in the gravel as well.

By the time Dejen is reached one is wondering what has happened to the water that has joined the river in tributaries entering on the right bank, not to mention those of at least equal volume on the left bank. There seems to be less than was seen at the lake outlet: or, to put it differently, all the water at Dejen could apparently be accounted for by the right-bank tributaries. This is partly explained by the fact that as I was travelling the river was rapidly decreasing week by week, owing to the dry season, and tributaries were falling and the smaller ones even drying up, and this must be added to the high rate of evaporation in the Abbai itself. It must also be remembered that I am only recording my own impressions: though carefully registered on the spot, no accurate methods of gauging were employed, and factors such as speed of current, depth, etc., can be very deceiving to the eye. I may note here that I saw no mud in the river between lake Tana and Wanbera. The speed of the water at all times of the year carries the whole of the fine silt forward, and there is little doubt that none stops on this side of the Abyssinian frontier. The water at the season of which I write was quite clear. There were sandbanks in a backwater at a bend in the river at Balati ford, our next river camp downstream, and there possibly was some mud among it, as the water between the sandbanks was stationary.

We left Dejen on February 26 and arrived at Kork on the 27th. The descent to Balati was easy, being gradual, but the valley was just as deep. There was little about the river which made it differ from the preceding. I heard Yellow-throated Sandgrouse (*Eremialector gutturalis lowei*) for the first time. They came to drink in the twilight, and their twittering notes could be heard for half an hour. They are low-country birds, and the

The Abbai at Baranta, looking upstream

Suha river falling from plateau into gorge

Evaporation shallows, Dejen

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The Abbai at Dibo, Enabsi district

The Abbai at Dejen

last I saw were at Gallabat (altitude 2493 feet). There were rocks on the road composed of biotite-schist, which sparkled in the sun.

We departed from Kork on March 2 and arrived at the Yezehin River in Jabi district on March 8. The Zemi fords were passed by, as they are comparatively well known, being on the trade routes, and the Yekatel ford also. We were forced away from the Abbai by the Chamwaga River, which is in the kind of deep valley previously described. Jiballa and Mutara hills on the right bank of the Chamwaga are interesting. They rise steeply out of the lowlands, and being precipitous on three sides make natural fortresses. There is water on the top, and a handful of men can hold them. Many distinguished political prisoners have been kept in them. Jessen, who passed over Mutara, gives a sketch and describes it in his previously mentioned book.

The descent from Jabi highland to Satana ford was another gradual incline, but a drop of quite 3400 feet in about 6 miles. There was no outstanding difference between this and other reaches of the Abbai, but there was a tendency to exchange the cliff-sided ravine along the banks for cone-shaped forest-clad hills, the sides rising steeply from the water. The rocky hills and the river-bed at the ford are composed of red pegmatite.

We left Jabi on March 11 and reached the Fatam river on March 14, where we had to stay until March 22 while the clerk went to Burye to buy mules : my animals were now feeling the strain of the awful climbs up and down precipices and tiring marches. He was able to obtain only six, which just enabled us to move on by careful re-arrangement of loads. I sent eleven tired mules back to Dangila by a man who was instructed to take them by easy stages, and there seemed a possibility that by this means they might be saved, whereas taking them on would have meant certain death. I hoped to purchase new mules on the road.

We left Fatam river on March 22 and arrived at Gum Yasus on March 28. Mabil ford was passed by, as it had been crossed by previous travellers, but the big U bend northwards taken by the Abbai near the Gum mountains was all in dotted lines, and I hoped to map this portion. Gum mountain itself, a predominant hill feature in the country, was not given the prominence it should have on the 1/2,000,000 map (G.S.G.S. 2571), and, like Fudi, seems to have been given scant notice by previous travellers. Fudi is a remarkable bare lava core of an extinct volcano, rising many hundreds of feet above the base in the shape of a cone. It is visible for 40 miles in many directions, can always be identified, and bearings should always be taken on it when seen. Unfortunately, its position has never been fixed by triangulation. The natives say there is a small lake on the top of it, but I have not been up to see. There is, however, a good example of a crater lake at Zangana, not many miles away and in the same hill system. The water remains at about the same

level, is quite clear, and as far as one can judge is of great depth. The lake is an exact circle. There is no inlet or visible outlet.

The descent to Zakas ford was a bad track for loaded mules, so it was not possible to take a tent and camp for the night, and I decided to do the whole journey in one day. We started by starlight an hour before dawn, spent half an hour on the river-bank fully occupied with photography, sketching, and taking bearings, and reached camp at dusk—a most strenuous day of thirteen hours' continuous travelling, with mules and men completely done up at the end: not an experiment I should care to repeat. It was, moreover, very hot and stifling in the valley. We found a long reach of sand about high-water level running along the river-bank, and on this was the best field of cotton I have seen in Abyssinia. This, the guide informed me, was grown by negroes or Shankalla. Their villages were a few miles downstream and lay on hills a little way back from the river, and this cotton was about the negro limit upstream. The inhabitants of the higher country of Gum Yasus are Amhara Abyssinians.

This was also the first time I was able to hear news of Jessen's journey: the guide had heard the story from a Galla, that a European had travelled along the Abbai here, and although I had been unsuccessful in my attempt to get his book before I started, I realized that it would not be necessary for me to make special effort afterwards to reach the water, as time was pressing. We left Gum Yasus on March 29 and arrived in Dangab parish April 6. We had crossed the depression of the Dura river, a lowland forest country which is given up to the negroes, as neither Galla nor Amharas can inhabit it. An Abyssinian officer and strong guard of followers accompanied us, as the negroes are said to be dangerous. At camp near their village the Shankalla chief brought presents, accompanied by a weird band composed of long coach-horn-shaped instruments, made of pieces of calabash. The Abyssinian officer and the negro chief seemed on good terms. The former spoke a little of the Shankalla language, but conversed through an interpreter in Galla, who put it into Shankalla.

At Dangab we were once more in the high country in the district of Dangija, my objective being a mountain named Alyume, which, overlooking the Abbai, promised good views of the valley, and also the Dora river depression. I found on reaching the summit that it made a first-rate station. It looked down into the Abbai water at a distance of about 6 miles, and I was able to follow it for a reach of 10 miles or more until it eventually disappeared round the south foot of Siribanti mountain. The river valley had here no ravine, and the country was much more open, but was still broken, with forest-clad lowland hills on each bank. I could see cataracts and rocks at intervals with the naked eye and with field glasses; the conditions could be seen as plainly as they would be from the banks. It would not have been difficult to journey down to

the river at Inasai ford, which carries the Dangab to Limu road, but I was now convinced by native information that Jessen had travelled along the banks, and it seemed a waste of time to duplicate his work. Since obtaining his book and reading his account of the cataracts and other water detail, I have decided that I could not have improved upon it.

There was, however, plenty of mapping to be done. The mountain of Jeladura is thus called by natives who live to the south of it, while to the north it is called Durajela. The question arises, which name the traveller should put on his map. A mountain in the Wanbera district was marked on the 1/2,000,000 map as Jabal Belinji and given some prominence, but I could not see the hills, neither did the natives know of one of that name. I can explain it only by the suggestion that an error arose from the fact that Belinji is an Amharic idiom for the English idiom " what's his name." The guide when asked what the name of a hill was, correctly intimated that he did not know, and the word was written down.

I had now given up all hope of getting through to the Sudan. The rain had been continuous, and every one agreed that I should lose most of the mules by fly-bite if they tried to cross the low country by the Sudan frontier, but it seemed to be worth while to have a look at this country from Wanbera high plateau, which could be reached without danger. The low depression of the Dora river and precipices prevented my taking a direct path, so I returned on my tracks to the Zingini river, and got there through Mora village, leaving Dangab April 8 and arriving at Wanbera town April 12. Mora village on high ground above the Dora depression is interesting as being mostly inhabited by the Shinasha people. They are a lower class of Abyssinian than either Galla or Amhara, and are in their turn superior to negroes. A strange trade is associated with this district, it being one of the centres of the civet industry. Civet cats are trapped in nooses and kept by the natives in heated houses, and well fed: the civet is extracted from the glands, is much prized locally, and fetches a good price in Addis Ababa for the European market. Much coffee of high repute is also grown in Kitar.

We had to cross the low forest of the northern part of the Dora depression, and the climb of the 3000-feet cliff to the Wanbera plateau is steep, but the surface is comparatively good. The rocks of the slopes are often composed of fine-grained mica-schist, which glint and flash in the sun and look like burnished gold. There is a small town named Wanbera—an important market—on the Roseires trade route. Wanbera is, however, also a big district reaching to the Balas river in the lowlands. The view from the western scarp of the highland includes the course of the Abbai winding among forest-clad hills as far as Guba, although the water was invisible, the distance being too great. Looking across the river one sees the hills on the Abyssinian and Sudan frontier, and beyond again to hills in Fung Province of the Sudan. I got bearings on to these, hoping

to be able to close my map on them, but unfortunately the Abyssinians have different names for hills there from the Sudanese, and therefore it has only been possible to identify one hill by its map name, Jebel Faronge. The Abyssinians gave me the name Farango, and as my ray came right on to it I have no doubt as to its identity.

The map-name of Bumbode on the frontier had never been heard of. There is no post or custom house there. A Galla merchant who had just returned with goods from Roseires was brought to me for catechism, had passed the place half a dozen times a year during a long lifetime, and declared there was no such place, though he knew well where the frontier was. I also asked him if he could find men to take me on to Roseires, and he said no one would undertake that journey so late in the season, though after the rains there would be no lack of guides and men, and the road is said to be easy. The Dura river lay below us. This is the second Dura we had seen, and with the Dora not far to the east of us a confusion of names is likely to occur. The Balas river was pointed out, but I could not see the water. This is the only right-bank tributary of any size that I had not crossed on the journey. It was seen and mentioned by Jessen, but he calls it the "Wanbera" river. He says that it is only a small stream in the dry season. The Wanbera merchant informed me that it is impassable in the rains. Jessen also says when he reached the Yabus river that up to that point the Yabus is the main tributary of the Blue Nile above Wad Medani.

I now had to return to Dangila. My route went back through Mora, and after that village it traversed unmapped country all the way to Dangila, so I was unable to put down my compass and rest as I should have liked to do. The districts passed are only indirectly concerned with the subject of this already over-long paper, but the material has all been included in the map. I had seen only two game animals in the whole of the journey, one water-buck and one kudu, both with shootable heads. In the neighbourhood of the Gum mountains buffalo were once numerous on the left-bank lowlands, but are now extinct, as are elephants, but a few lions are still slain annually around Dangija. The modern rifle has practically wiped out the game. The Abyssinians account for the disappearance of the buffalo by the ravages of a disease which also within a few years swept off their cattle in the Gum Yasus area, where they now have to plough with donkeys. Fish of good size and of many edible varieties were always to be caught in the Abbai.

APPENDIX. SUMMARY OF WATER DETAIL ESTIMATED AT VARIOUS POINTS ON ABBAI

A careful estimate of the water passing the Lake Tana outlet will be found in Mr. Grabham's book previously mentioned.

January 3. Abbai water above Tisisat falls 400 yards wide; current in middle almost imperceptible, but nearer falls it becomes shallower and moves

Satana cataract near ford

Dura river, looking upstream

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Falls on Fatam river

Cotton on banks of Abbai, Zakas ford, Akako

at 6 miles an hour. Flood mark runs about 100 yards inland on banks; now river is about half-flood capacity.

At Dildi half a mile below falls river in gully 7 feet wide; speed 12 miles an hour; depth unknown. In flood water would be 50 yards wider and 12 feet higher.

January 9. Waldagadana. Abbai water 70 yards wide; speed of current, a stick took 35 seconds to travel 30 measured paces; depth unknown.

January 11. Just below pool at Yekel Abbai channel cut in solid rock water 12 yards wide; speed 8 miles an hour, estimated by imagining a bicycle running along bank. Width at flood-level 48 yards; height would be 12 feet higher than at present.

January 15. Sabera Dildi. Current of Abbai at bridge: Speed 4 miles an hour; width 12 yards; depth unknown. Men were swimming across.

January 24. Abbai at Tammi Junction. Water 112 feet across; speed 6 miles an hour. A boy 5 feet 6 inches high walked across without submerging his armpits.

February 6. Daga Ford below Dibo. Walked to place where water passed most evenly in channel; water 45 yards broad; stick took 13 seconds to travel 50 measured paces, but it did not keep in centre of current, where it was half as fast again. Mules cannot cross here, but guess it would be 6 feet in centre, with even shelving on each side to shallows at banks. Flood marks on banks 6 feet above present level. Air temperature one hour after sunset 81°. Same place, at actual ford. Saw man of 5 feet 9 inches walk across. He crossed where current crosses from right bank to left giving a more even water depth. Water at deepest came up to his armpits; width of water 120 yards; cattle swam; width of gravel foreshore 64 paced yards; wrack caught in trees 10 feet above present water-level. The species of trees indicate that it only occasionally reaches this height, perhaps once or twice a year.

Temperature of water one hour before sunrise 67°; air temperature two hours after sunset 77°; one hour before sunrise 67°.

February 18. Malka Dibo Ford below Shita. Left bank high flood-level is close to present water-level. There is steep pebble slope above this, and after that sand and then a tree-clothed flat of 400 yards width to hill slope. On right bank broad pebble slope 150 yards wide, all covered in flood. Shade temperature noon 95°; in sun on rocks of river-bed 127°; water 150 yards across; stick took 49 secs. to travel 50 measured paces. Knee-deep at deepest part and fairly even all the way across. Two men crossed ford. Air temp. before sunrise 65°, humid especially near water; water temp. Abbai in current before sunrise 70°.

February 24. Shefartak Ford below Dejen. Air temp. shade at noon 90°. Water temp. noon 81°. Air shade temp. before sunrise 73°, humid. Water at ford 180 to 200 yards across, and is crossed where current changes from right bank to left. Stick took 60 seconds to travel 50 paces. First 80 yards of ford is 1 foot to 1½ feet deep; in the middle it is up to a man's armpits, and when quite close to left bank gets shallow again. Detail of rapids below ford: water 50 yards wide, speed 8 miles an hour, deep part in centre 30 yards wide, depth unknown. The other 20 yards towards right bank slopes gradually from 3 feet to edge. Detail lower down: water 80 yards wide, speed 3 miles an hour, tranquil flow, probably fairly deep, several big crocodiles and hippopotami. There is gravel foreshore on right bank only. It is 120 yards wide, flood mark 12 feet above present water-level.

February 28. Near Balati Ford below Kork. Water 80 yards wide, speed

Cotton on banks of Abbai, Zakas ford, Akako

Falls on Fatam river

6 miles an hour, depth unknown. Flood channel high-water mark 18 feet higher than present water-level; it would then be 200 yards wide. Hippopotami seen. Air temp. before sunrise 73°.

March 9. Satana Ford below Jabi. Mules cross only by swimming here. My men swam in ford pool without fear of crocodiles. Ford is a deep pool, water 80 yards wide; current almost imperceptible, perhaps half mile an hour; depth unknown. Rapids 800 yards below ford are 30 yards wide, drop 6 feet in 50 yards, speed 16 miles an hour. No foreshore on either side of ford, but there is foreshore on left bank at rapids.

March 28. Zakas Ford, below Gum Yasus. Water 200 yards across, water speed so slow as to appear to have no current. Men cross ford at this time of year on foot. Flood channel would be 80 yards wider than present water width and height 18 feet above present level. On left bank water could not expand much, as land rises more steeply from edge to forest-clad hills; steep sandbanks contain flood on right bank. Temp. of water not taken, but it was warm to the touch.

From this point onwards a good general description of the Abbai to Roseires will be found in Mr. Jessen's book previously mentioned.

DISCUSSION

Before the paper LORD RONALDSHAY said: The last time we gathered together for one of our evening meetings we met under the shadow of a great sorrow, and it is arising out of those circumstances that we meet to-night in somewhat abnormal conditions. It has devolved upon your Council to appoint one of its number to succeed the late Dr. Hogarth as your President for the remainder of the geographical year, and as a Trustee of the Society I was invited this afternoon to take the chair at a meeting of your Council at which it decided upon this appointment. Your Council have decided to invite—and I am glad to say that the candidate has found it possible to accept—Sir Charles Close to occupy the presidential chair. It would be almost impertinent of me to rehearse before you Sir Charles Close's qualifications for the office. You know well that he is a member of this Society of many years' standing and that he has in the past rendered yeoman service to it. For more than twenty years he has served as a member of your Council, and during that time he has added greatly to the success of your Council's labours. He is in himself a man of great qualities and of high distinction. In the geographical world his name stands as high as that of any Englishman living at the present day. He is well known not only in this country but on the Continent. He has served for some years past as the General Secretary of the International Geographical Union; he has recently been the Chairman of the Geographical Association; he has been at the head of the Geographical Section of the British Association; and he has had, therefore, much experience of presiding over geographical meetings. He is a man of great scientific attainments and a Fellow of the Royal Society. Indeed, I could tell you much more of his technical and his scientific qualifications for the post which he is now invited to occupy, but there is no need to do so. You will, I know, welcome with enthusiasm the choice which your Council has made, and you will offer to your new President a very hearty welcome. I now ask Sir Charles Close if he will take the Chair.

Colonel Sir CHARLES CLOSE: I think Lord Ronaldshay has painted my career in rather too favourable colours. There are, perhaps, some dark spots which he has forgotten! However that may be, I feel it a very great honour to have been selected to fill this interim position. I can assure the Fellows of

the Society that I will do my best to carry out the excellent traditions of this office, traditions which were exemplified in no small degree by the character and work of the President whose loss we all so greatly deplore. In those few words I hope I have expressed my feelings of our general loss and my insufficiency. But I will do my best—I cannot say more—to carry out the work that is before me.

The paper which is to be read to you this evening is on the Blue Nile, a subject which has been to the fore in the press and one as to which all of us are anxious to learn what we can. I am sorry, for many reasons, that the writer of the paper is not present; he is, as a fact, on his way back to Abyssinia, but Colonel Winterbotham has very kindly stepped into the breach and will read the paper. As chief of the Geographical Section, General Staff, he knows all about geography everywhere. There is nothing official about the Blue Nile that he does not know, but he is going to tell us what is written in another person's handwriting; not his own experience. I hope you will be quite clear about that: it is Major Cheesman's paper, but Colonel Winterbotham is going to read it.

Colonel Winterbotham then read the paper printed above, and a discussion followed.

Mr. C. F. Rey: I have been able to sympathize with and to admire Major Cheesman's efforts in the trip which Colonel Winterbotham has so very ably described this evening, for on my own trip over the Abbai valley I found the country all that it appeared on the slides to-night, and a bit more in places. The "mountain brook" to which Colonel Winterbotham referred so feelingly and of which he showed such alarmingly swollen pictures is, I think, one of the most difficult places to travel near; certainly the most difficult place that I have ever tried to negotiate. Major Cheesman followed the first 70 miles of his trip fairly closely along the banks of the Abbai. Now if you can imagine what it is to try and follow a river along banks with anything from a 3000 to 5000 feet drop, and from 5 to 10 miles broad at the top, intersected by frequent and precipitous ravines, you will realize that it is obviously an impossibility to follow such a river down the whole of its 500-mile course. That Major Cheesman was able to follow it for the first 60 miles or so is a remarkable achievement. You will have observed from the excellent map that was shown that he did not attempt to follow it after that; but that he made wide détours and came back to it in five or six places.

In the course of his paper Major Cheesman said that from what he had seen of the river high up he thought it was obviously almost impossible to go down it by water; that it would take five years and cost £5000. But what he seems to have proved was that it was impossible to go down it by land. He proved that very conclusively, and I think that if the river was as it is in the first 50 or 60 miles that possibly might apply to the route by water. But as the river drops 4000 feet from lake Tana to the frontier and as 2000 feet out of that 4000 feet is in the first 50 miles, it is obvious that the rest of the river is a very much more gradual drop and a very much easier proposition to negotiate by water, although extraordinarily difficult to negotiate by land along its high banks, cut by the tremendous streams and tributaries which run into it and of which I have crossed some five or six.

Major Cheesman referred to the difficulty of nomenclature and of fixing locality. I sympathize with him there very much. In the first place, nearly all places have two names, one in Galla, one in Amharic. They call river, town,

or district all by the same name. If you ask for a town of a particular name you may be told you are there, when really you are 30 miles away from it. That does not add to the facility of getting about the country. Even people who know the routes do not want to travel about on them, and, above all, the people detest going into the low country.

I think Abyssinia is probably one of the most difficult countries in Africa left to travel in, and the part which Major Cheesman has described is the most difficult of all that is now left for explorers. There is a good deal yet to do to complete the very admirable work which Major Cheesman has carried so much farther and of which he has given such admirable proofs. I do not altogether agree with some of his theses—for example, the difficulties of the water route—and certainly not with his description of that great river, with its large falls, as a mountain brook. I think the photographs speak for themselves on that point.

The CHAIRMAN: Mr. Hinks has a communication to read.

Mr. A. R. HINKS: For several months I have been pursued with injunctions that we are by no means to allow Major Cheesman to call the valley of the Abbai a tectonic valley. I was compelled to reply that if against all advice he persisted in calling it a tectonic valley, as Colonel Winterbotham has read, it was not for us to stop him; but I promised that Mr. Grabham, who is Government geologist in the Sudan, should have an opportunity of expressing his strong dissent, and I have recently received the following note from him, dated Khartoum, November 5:

"This is just a line to say that I have written to Cheesman protesting against his calling the Blue Nile Valley either a Rift or Tectonic Valley. This of course applies only to the parts I have seen, and these lie near Lake Tana and also between Addis Ababa and Debra Markos. I think there is no doubt that the valley is the result of erosion."

The CHAIRMAN: The hour is getting late, and I think you would wish me to conclude the proceedings by thanking both the reader and the author of the paper. I think the paper has left three ideas in our minds: First, that Lake Tsana no longer has an "s" in it. I was brought up to call it "Tsana"; I hope it is the same lake! Secondly, there is apparently very little irrigable land near the Abbai river. And, thirdly, whilst we have listened to an admirable account of an excellent exploration, there is obviously a great deal more to be done. It will be the duty and the pleasure of this Society to encourage explorations on the Blue Nile in every possible way. You will, I am sure, wish me to thank Colonel Winterbotham for reading the paper. He identified himself very closely with what the writer had written. At one time one almost thought he had been there himself. At the same time, I am sure you would wish us to write to Major Cheesman and thank him, not only for his paper but for his excellent slides, and for the pluck and skill with which he carried out his very interesting expedition.

AN ARCHÆOLOGICAL TOUR ALONG THE WAZIRISTAN BORDER

SIR AUREL STEIN, K.C.I.E.

AT the beginning of January 1927 I started on an archæological tour along the Waziristan border and through the whole length of Northern Baluchistan, which kept me fully occupied until the middle of April. My object was a systematic survey, accompanied where advisable by trial excavations, of such ancient sites in the border regions between India and Iran as are likely to throw light on the connection of the prehistoric civilization which the excavations at Mohenjo-daro and elsewhere in the lower Indus valley have revealed with corresponding cultures traced westwards in Persia and Mesopotamia.

The survey began with the examination of a series of conspicuous mounds echelonned along the eastern foot of the Waziristan hills from the vicinity of Draband to beyond Tank. Mr. E. Howell, C.S.I., late Resident in Waziristan, had first directed attention to them. They proved to be composed wholly of the accumulated débris layers of ancient settlements which in the course of occupation prolonged through ages had raised the top of those mounds to heights up to about 100 feet above the adjacent ground. Erosion facilitated by the great aridity of the climate has caused the surface of these mounds as well as of those subsequently surveyed in Baluchistan to be thickly covered with pottery remains from the culture strata embedded.

Among them fragments of decorated earthenware, painted, incised or ornamented in relief, were found in great abundance and variety of design. The painted pottery from these sites in colour treatment and in certain of its geometrical patterns shows a well-marked affinity to the painted pottery subsequently collected from sites of the " chalcolithic " period in Northern Baluchistan, and also to that discovered by me in 1916 at desert sites of the same period in Sistan. On the other hand, the incised and relief-decorated pieces by their motifs recall ceramic ware found at certain Sistan sites which can be assigned to historical times preceding Sasanian rule. Having regard to the upper and lower chronological limits thus indicated and taking also account of the fact that no painted pottery of the above kind was found at those Buddhist sites on the Indian North-West Frontier which can definitely be assigned to the Indo-Scythian period, the remains of those Draband and Tank mounds may be attributed to early historical times separating the latter period from that of the " chalcolithic " culture.

The very willing assistance of the political authorities permitted the extension of my survey to tribal territory in both Northern and Southern Waziristan, where I made interesting observations on the striking parallel which the fine military roads with their fortified camps, watch towers,

etc., recently constructed for the pacification of that troublesome border, present to the Roman *Limes* systems of the early Imperial times.

The remains of an ancient stronghold examined at Idak were proved by the evidence of coins and of a ruined Stupa to date from the Indo-Scythian period. Farther north, at Spinwam, there was found a mound formed by culture strata of approximately the same epoch as noted around Draband and Tank. Above the point where the Kurram river debouches from the hills a rapid survey was made near Shahidan of extensive remains marking a fortified site which by the evidence of its painted pottery can also be assigned to the last-named epoch.

Subsequently proceeding *viâ* Razmak and the outpost of Sarwekai, I made my way under the protection of tribal Wazir headmen to the Gumal river. Remains of forts visited in the Spin plain proved to belong to late historical times. The whole area now comprised in Waziristan, barren as it is, presents a distinct interest to the student of the ancient geography of India. Its chief rivers, the Kurram and Gumal, as well as the latter's chief affluent, the Zhob, are mentioned in the famous " River Hymn " of the Rigveda under their ancient Sanskrit names of *Krumu*, *Gomati*, and *Yavyavati*. This makes it appear very probable that this region had for some length of time been in the occupation of Aryan tribes before they descended from their hills to the conquest of the Indus Valley and the Punjab plains.

The description which Hsüan-tsang, the great Chinese Buddhist pilgrim of the seventh century A.D., has left us of the territory of *Chi-chiang-na*, corresponding to the present Waziristan and the *Qiqin* of early historians, clearly shows that in his time too, centuries before the advent of Pathan tribes, this territory " under separate local chiefs but without a supreme ruler " and " abounding in sheep and excellent horses " had already a reputation not unlike its present one.

Moving up the Zhob valley, in Baluchistan territory, I found a series of ancient mounds awaiting exploration in the vicinity of Fort Sandeman, the headquarters of the Zhob Agency. Among them *Periano-ghundai*, the " Witches' Mound," is the most conspicuous, rising to fully 70 feet above the adjacent river-bed. Trial excavations carried out here proved that the débris deposits of ancient habitations composing the mound belong for the most part, if not entirely, to the " chalcolithic " period. The abundant remains of painted pottery from this site, whether exposed on the eroded slopes or excavated, are, like most of the plain earthenware too, of a superior well-levigated clay and wheel-made. The painted pieces show almost exclusively patterns executed in black over a dark terracotta ground colour. The motifs composing the painted patterns, mostly geometrical, are remarkably varied. Throughout they strikingly recall the motifs prevailing in the prehistoric pottery I discovered at desert sites of Sistan during my third Central Asian expedition. Many of these motifs are found also in the prehistoric pottery of Anau in

Transcaspia, and can similarly be paralleled from pre-Sumerian strata of certain Mesopotamian sites.

The trial excavations made at different points of the mound laid bare remains of habitations built mainly with walls of stamped clay or sun-dried bricks over rough stone foundations. Among the finds made there the numerous cinerary urns with ashes and bone fragments from cremated human bodies claim special interest. They acquaint us with the funeral customs of the period. A considerable number of smaller painted jars and cups found within them serve to show the shapes of vessels used by the living. Terracotta figurines of animals display distinct artistic skill, while the comparative frequency with which a hooded female bust of peculiar shape recurs here as well as at other " chalcolithic " sites explored suggests that the representation of some deity is intended. Finds of stone " blades " and arrowheads were made throughout in the course of the trial excavations, and their association with fragments of copper implements and small ornaments, etc., of bone and stone permits us definitely to assign the painted ceramic ware of this important site to the " chalcolithic " period of prehistoric civilization.

Painted pottery of exactly the same type was plentifully found also at two smaller mounds in this neighbourhood, those of *Kaudani* and *Moghul-ghundai*. Finds of worked stones and of bronze fragments make it quite certain that at both mounds occupation goes back to the " chalcolithic " period. Close to Moghul-ghundai an extensive cemetery was discovered with interesting remains dating from historical times. Here the hillside was found studded with many cairns of rough stones, each containing a few small pieces of calcined bones, fragments of coarse plain earthenware, and occasionally small personal relics such as iron arrowheads, knives, bronze rings, a silver bangle, etc. The relief decoration found on one small pot and the figures engraved on one seal ring prove that these curious cairns cannot be older than the early centuries of our era.

After surveying several small sites where occupation during the " chalcolithic " or early historical period was indicated by pottery débris, I then moved south-east into the Loralai Agency. Among a number of old mounds and other remains in the Bori Tahsil the once very large mound of Rana-ghundai deserves mention. Among the plentiful painted pottery covering its slopes or embedded in its " culture strata " a good deal of fine " chalcolithic " ware was found, besides pieces of coarser fabric pointing to continued or renewed occupation perhaps during early historical times.

Definite evidence of such prolonged occupation at different periods, from prehistoric down to historical times, was obtained in the course of the excavations carried out at the great mound near *Dabar-kot*. It rises like an isolated hill in the middle of the open Thal plain to a height of no less than 113 feet, and measures nearly a mile in circumference at its foot.

The great mass of painted pottery found on the slopes and excavated at lower levels displays unmistakable characteristics of the "chalcolithic" type, and finds of cinerary urns, worked stones, and small bronze objects date from the same period. The discovery in the same layers of a well-constructed drain built with burnt bricks indicates the comparatively advanced stage of civilization reached. Successive strata full of charred remains point to great conflagrations which had at intervals overtaken the prehistoric settlement. Long after its complete abandonment convenient positions on the mound had again been taken up for dwellings during pre-Muhammadan times.

Simultaneously with the trial excavations at the great Dabar-kot mound it became possible completely to clear the remains of a ruined Buddhist Stupa or relic tower discovered on a rocky hillock some 4 miles away at the entrance of the Thal plain. Its relic deposit with small gold-set jewels, pearls, beads, etc., was found undisturbed. The surviving Græco-Buddhist carvings of the base and numerous pieces of pottery jars inscribed in Indian script and language proved that this sanctuary, the first Buddhist ruin discovered in Baluchistan, belongs to the Kushan period.

At Sur-jangal in the same valley a very interesting small settlement of prehistoric times was discovered near the dry river-bed descending from Sanjawi. The cuttings made through the low mound there yielded not only abundance of ceramic ware of the "chalcolithic" type, but also a large number of stone implements such as flint blades and arrowheads. From the great quantity of flint cores, chips, etc., found there it may be concluded that the manufacture of these stone implements was being carried on for generations in this locality, the river-bed close by supplying the raw materials.

After visiting several small sites of later historical times in the hills about the Zhob river's headwaters, I subsequently surveyed numerous ruined mounds in the Pishin basin. They attest the economic importance which this large and potentially fertile tract must have claimed at all times, and which also accounts for its mention in the earliest Zoroastrian scriptures among the chief territories of ancient Iran. The painted pottery and other relics collected at those mounds indicate that most of them, though built up at first by débris deposits of prehistoric settlements, continued to be occupied during historical times. At the Sarakala mound, crowned by the walls of a ruined fort, I was specially interested to note the plentiful occurrence of ceramic ware decorated with ribbings such as my explorations in Sistan had shown to be particularly associated with remains of the Sasanian period. Thus here, too, there was evidence of that close cultural connection with Iran which geographical factors have imposed upon those westernmost border lands of India since the earliest times. My tour came to its close by the middle of April with the examination of a series of mounds towards Quetta, similar to those of Pishin.

THE OASIS OF KELPIN IN SINKIANG

LIEUT.-COL. R. C. F. SCHOMBERG, D.S.O.

THE oasis of Kelpin has been very seldom visited by an European, as although near the chief routes it is sufficiently far away to make a journey to it a distinct effort. It is also protected from the intrusion of the curious by its nearest way of approach lying through singularly sterile and waterless country.

Kelpin is some 76 miles south-west of Uch Turfan by road, and the first 50 miles run through the stony wastes and stonier mountains that are such a feature of Sinkiang. On these 50 miles there is no water at all during most of the year. In the early spring, when the snow is melting, or earlier even when the snow still lies on the ground, there is no water difficulty. The grazing, too, is ample and the journey then offers no difficulty. The road has some striking features. It leaves the valley through which it has been leading, and plunges at right angles through a rift in the hillside. In one of these gorges the cliffs rise perpendicularly to over 200 feet, whilst the road barely 6 feet wide—just enough for a laden pack-horse—is on the stony bed of a torrent. From Kashgar it is 190 miles by road to Kelpin. During the hot weather the Yai Dobe plain is troublesome, as mosquitoes are a nuisance, and there is scanty shade. But nearly 60 miles on this route have to be done without water, and in summer this is a precarious business. It is true that some 15 miles from the oasis, and 6 miles off the main track, there is a spring tucked away in the hillside, but this but little mitigates the troublesome nature of the march. The long Kelpin Jilga that the road from Kashgar has to traverse is a great obstacle, and it is only during winter, when the snow is on the ground, that it is at all used. At the head of this valley, at Sargan, there is excellent grazing, with an abundant growth of tall grass, tamarisk, and reed. There is however no water. Sir Aurel Stein's map shows two wells, but these have been out of use for years. The Qirghiz who graze their flocks here have to bring all their water from Tatir, some 18 miles away.

The routes from Kelpin to Maralbashi and to Aksu are equally unpromising. The former is the most frequented of all ways of approach, but that too means a journey through an arid tract. The Aksu road is seldom taken.

The oasis is watered by two streams. The main stream flows from the north-west, the smaller one from the north. The water is admirable, clear and sweet. So much of the Turkestan water is either muddy or brackish. What is remarkable is the absence of goitre in Kelpin, whereas at Uch Turfan, where the Tushkan (Taushkan) river suplies clear sweet water, the great majority of the people have had goitre.

The people of Kelpin are clannish in the extreme. They object to the presence of strangers, and the enterprising merchants of Kashgar

and Aksu, who have tried to establish themselves there, have been speedily driven out.

The inhabitants are more Semitic and less Mongolian in feature than the average Sart of Turkestan. They speak a somewhat rough patois. The total population of this small district is said to be 2000. A Chinese Amban is in charge.

The oasis consists of two large areas, with a long thin piece of cultivation wedged between them. It is on this strip that the bazaar is situated. For six days in the week it is a dull row of shuttered, rather squalid shops. But on Monday is the bazaar-day, and the whole world flocks to the market. It is a mass of seething, chattering folk. Large hunting eagles are a feature of the place, and redeem the rather ordinary appearance of the bazaar. Owing to the excellent water, the products of the Kelpin are unusually good. The flour, rice, melons, and other crops are above the average.

In late autumn, when the place was visited, the tints of the leaves gave a bright and cheerful appearance to the oasis. The millet crop was being threshed. The rice had just been garnered. The rich cultivation, hemmed in by dreary sand or gravelly sai and ringed round by barren pointed mountains, was highly attractive in the crisp and clear October air. The growth of the fruit-trees and the comfortable farms contrasted favourably with the overgrown tree-smothered tracts of Southern Kashgaria. There was an air of comfort about the place which was lacking in Yarkand, Yangi Hissar, or even Kashgar.

It is unlikely that any change will alter the present state of Kelpin. It is inaccessible, and likely to remain so. No through route would come near Kelpin, the water difficulties as well as the mountains preclude that, and the oasis has the happy prospect of remaining unspoilt.

THE INTERNATIONAL GEOGRAPHICAL CONGRESS OF 1928

THE International Geographical Congress of 1928 will be held in London and Cambridge in July. It is expected that most of the foreign members of the Congress will arrive in London on July 13, or a day or two earlier. The arrangements in London include meetings of the Committee on the International Map of the World, usually known as the 1/Million Map, or the *Carte du Monde au Millionième*, and it is hoped that this Committee will be able to settle some points which the experience of the past fifteen years has shown to require decision. These points do not affect the fundamental principles, which were settled at the Paris Conference of 1913.

The programme for the three days to be spent in London includes, on July 16, a reception at Guildhall by the Lord Mayor and Corporation of the City of London, and His Royal Highness the Prince of Wales has expressed his intention of being present at this Reception. There will be a Reception at the House of the Royal Geographical Society on the afternoon of July 14; and on the evening of Sunday, the 15th, by permission of the Board of Education, the newly extended Science Museum will be open to members of the Congress.

His Majesty the King has been graciously pleased to intimate his intention of receiving the members of the Executive Committee of the International Geographical Union, under the auspices of which Union the Congress will be held.

It may be as well to point out that the Congress is truly international in character, although held in conformity with the statutes of the International Research Council. Those countries which have already adhered to the International Geographical Union have the right to nominate delegations to the Congress at their own pleasure, and, at the same time, there is no restriction as to the number of geographers who may attend from these countries in a private capacity. The geographers of countries that have not yet joined the Union attend by invitation, but, in order that there may be no inadvertent mistakes in the issue of the invitations, the countries concerned have been requested, through Diplomatic channels, to be so kind as to furnish a list of those geographers to whom it is desired that invitations should be sent.

Since June 1926 the International Research Council has revised its statutes, and it is no longer open to the reproach that it is a partisan body. And on this point it should be noted that the British Government, before giving its support to the Congress, desired assurance that what used to be called the ex-enemy countries should be invited to take part on an equal footing with all other countries. All members of the Congress, whether belonging to countries adhering to the Union or not, have equal rights. There will be no discrimination of any kind.

Communications may be made, or speeches delivered, in any language. The Executive Committee is anxious that the Congress should bear the truly international, friendly character of the Geographical Congresses of the past.

On July 17 the members of the Congress will travel to Cambridge, and the Congress will be formally opened there on the 18th by the Vice-Chancellor of the University. It will proceed on the usual lines until the 25th, when it will be formally closed. There will be a farewell banquet, offered by His Majesty's Government, and presided over, it is hoped, by the Secretary of State for Foreign Affairs, Sir Austen Chamberlain. The President of the Congress will be General Nicola Vacchelli, the President of the International Geographical Union.

The Congress will, as in the past, be divided into sections, and there will be sectional meetings as well as general meetings of the Congress. In addition to the usual varied communications concerning the different branches of the subject, certain matters have been selected by the Executive Committee of the Union for special consideration. These are the discussions of the *Carte du Monde*, the question of *Habitat Rural*, the question of the Pleistocene and Pliocene Terraces in Western Europe and the basin of the Mediterranean, the interesting problem of the Variation of Climates, the study of Internal Drainage Areas, and a series of Regional Studies of Great Britain. Specially prepared reports on these subjects will be presented to the members of the Congress.

After the conclusion of the Congress motor coach excursions through England and Wales have been arranged for those who care to take part in them.

Any further information concerning the Congress can be obtained from the Secretary, International Geographical Congress, Caius College, Cambridge. C. F. C.

EARLY EXPLORATION IN WESTERN CANADA

JOURNALS AND LETTERS OF P. G. DE LA VÉRENDRYE AND HIS SONS. Edited by L. J. BURPEE. *Toronto: The Champlain Society* 1927. 10×7 *inches;* xxiv+548 *pages; maps*

MACKENZIE AND HIS VOYAGEURS: By Canoe to the Arctic and the Pacific, 1789–1793. By A. P. WOOLLACOTT. *London: J. M. Dent Ltd.* 1927. 8×5 *inches;* x+238 *pages; illustrations and map.* 6*s*

MACKENZIE OF CANADA. By M. S. WADE. *London: Wm. Blackwood & Sons Ltd.* 1927. 9×6 *inches;* 332 *pages; illustrations and map.* 15*s*

IT is significant of the increased interest now being taken in early exploration that these three books, all bearing on the opening up of Western Canada, should have appeared almost simultaneously, dealing with the work of the two men who stand out most conspicuously, on the French and British sides respectively, for the value of their achievements in this field.

Of the many attempts, arising out of Magellan's voyage, to find a northern route to the Pacific not the least interesting are those made by the French during their occupation of Canada. The voyages of Cartier were the earliest of such efforts, and when Champlain followed sixty years later, his avowed object on his expedition up the Ottawa River was to find a route to China. During the next hundred years the French penetrated very little beyond Lake Superior, and up to the beginning of the eighteenth century Western Canada was virtually unknown land to the white man. In 1685 there was born to the Governor of Three Rivers a son destined to become one of the most picturesque figures in the exploration of North America—Pierre G. de la Vérendrye. As a lad he entered the army, and went through several campaigns both in Canada and Europe. Early in the eighteenth century interest was revived in finding an overland route to the Western Sea, and there was a general belief that a great river flowed west into the Pacific. This belief had taken a strong hold of the adventurous mind of La Vérendrye, who in 1726 had been appointed commandant of the trading post on Lake Nipigon. He offered his services to the French Government, which had decided to pursue this quest. His offer was accepted; but that Government, with the parsimony and short-sightedness that seem always to have dogged its steps, refused to give him any pecuniary assistance. It merely offered to grant him licences for fur trading, from the profits of which he was to finance the venture.

La Vérendrye accepted these terms, and in 1731 proceeded with his nephew, La Jemeraye and his three sons, to the end of Lake Superior. The next year he set out from Grand Portage, and by way of Rainy Lake reached the Lake of the Woods; thence descending the Winnipeg River the lake of that name was reached, and the Red River discovered. Later Lakes Manitoba and Winnipegosis were discovered. Having overcome the physical difficulties of innumerable portages, he was met with the serious one of dealing with the Indian tribes, constantly at war with one another. La Vérendrye showed great patience and tact in dealing with these people, and was generally successful in his efforts for peace, though not without discouragements, one of which was the massacre of his son and twenty men by Sioux. The Assiniboine River, which joins the Red River where the city of Winnipeg now stands, was ascended and on it a fort was built named La Reine. From this point La Vérendrye made an adventurous journey across the prairies to the Mandan tribe on the Missouri. He had often heard of this most interesting of Indian tribes from other natives, and hoped to learn from them of a route to the Western Sea. In this he was disappointed owing to the desertion of his interpreter, and he

returned to Fort La Reine. Two years later two of his sons visited the Mandan villages, and after a stay of three months obtained guides for a further advance. After much delay they fell in with a friendly tribe of Bow Indians, and in their company reached the foot of the Rocky Mountains. The Indians refused to go farther, and most reluctantly they were obliged to turn back, eventually rejoining their father at Fort La Reine. Attention was now turned towards a more northerly route, and the Saskatchewan River, entering Lake Winnipeg at its northern end, was discovered and explored to the junction of its two main branches.

Such in brief outline is the character and extent of La Vérendrye's exploration. Although little more than a name to most people, it marks him out as the great pioneer explorer of Western Canada. The book under review is one of the handsome volumes issued by the Champlain Society of Canada, and contains all the journals and letters that have been recovered referring to the exploration. It is admirably edited by Mr. Burpee, who was marked out for the task by the attention called to La Vérendrye in his valuable work 'The Search for the Western Sea,' in which the general reader first had the story presented in outline. The French text and English translation are given page by page, and there is a good bibliography. There are seven maps, one of which was drawn by La Vérendrye.

Probably no more enthusiastic and single-minded man ever devoted himself to exploration than La Vérendrye, yet he had the mortifying experience of not only finding his efforts unappreciated by Louis XV and his Colonial Minister, Maurepas, but also of being accused of devoting his energies to the pursuit of financial gain, though in fact he was deeply in debt for goods essential to the enterprise, and though the Marquis de Beauharnois, then Governor of Canada, strongly defended him in his dispatches to Paris. Under these circstances La Vérendrye withdrew from the work, and exploration languished. Four years later, having been grudgingly given his captaincy and granted the Cross of S. Louis, he was reappointed to pursue the exploration, but before he could again start for the west he was seized with illness and died. The shabby treatment of the Government was now to be transferred to the sons, who had shown themselves full worthy of their father in the part they had taken in his exploration, but who were not allowed to join the expedition of his successor.

While the outstanding pioneer on the British side is no doubt better known to the public than his French predecessor, one can hardly think that due attention has hitherto been given to the life and work of one of Britain's greatest explorers—one moreover whose discoveries opened up wide areas for the Empire. Sir Alexander Mackenzie was born at Stornoway, in the island of Lewis, in the year 1764. Before he was thirty years of age he had explored the great river, now called after him the Mackenzie, to its mouth in the Arctic Ocean, and had been the first white man to cross North America, north of Mexico, from Montreal to the North-West Pacific Coast. These expeditions were planned and undertaken solely on his own initiative, and were made without any encouragement or help other than was available to him as a member of a fur company. They were carried out under conditions of incessant difficulties and dangers, and in face of constant toil, privation, and discouragement, with the aid of a few Canadian voyageurs and Indian hunters.

On his return from the Mackenzie River expedition, so far from receiving recognition or appreciation of his discoveries, they were hardly mentioned by his colleagues of the Fur Co npany, or if so, only to be deprecated as a waste

of time and resources. But his enthusiasm was not damped, and he was eager as ever to discover the great river which he was convinced flowed into the Pacific Ocean. His canoe voyage with nine men up the Peace River, over the divide to the Fraser, down the upper course of that river, and thence overland to the Pacific coast, is a veritable epic, and for courage and determination in overcoming perils, and for resource and tact in dealing with the native tribes, deserves to rank with the achievements of Livingstone, Mungo Park, or Stanley. Yet to many who have at least some knowledge of these explorers the name of Mackenzie is probably almost unknown. This ignorance, not very creditable to his countrymen, the authors of the two books under review set out to remove. In consequence of the great strain to which his journeys had subjected him, Mackenzie found writing an account of them a trying task. But on returning to England he managed to find a publisher, and his ' Voyages ' appeared in print in 1801. His narrative is modest and direct, but reveals the leader of the expeditions as first and foremost in sharing to the full all the labours and perils encountered.

Each of these books consists of a running account of Mackenzie's two voyages, based on his narrative, with explanatory comments and notes. Mr. Woollacott's volume is the less pretentious, but is the better illustrated with thirty-two excellent little photographs, and he brings out the political significance of the journey to the Pacific coast. The map however is small and inadequate. There are five appendices, one of which is explanatory of the native tribes encountered by Mackenzie, and another contains a bibliography. It should be added that it is decidedly cheap as illustrated books are generally priced nowadays. Mr. Wade's book is more ambitious, and gives as far as his researches permit a biography of the explorer from birth to death. It is not well illustrated, but contains a copy ot the portrait of Mackenzie by Lawrence which appeared in the ' Voyages.' There is a fairly good map of Mackenzie's trail from the Fraser to the Pacific coast, but without lines of latitude or longitude. But there is no map of the route from the Peace River to the Fraser, and none of the voyage down the Mackenzie, except an outline sketch of the delta. It is true that Mackenzie's map shows few details, but it does give the route through Slave Lake, which is somewhat difficult to follow without it. Notes, appendices, and a list of authorities consulted are added.

Having entered a merchant's office in Montreal when only fifteen, the young Mackenzie had little opportunity for scientific study. He had so keenly felt his shortcomings in this respect on his first voyage, that when he visited England in 1791, he devoted some time to such studies as would make him better equipped for scientific observation on a new journey. On his expedition to the Pacific he was thus able to determine his positions more accurately, though his observations were often made under considerable difficulties. On his return to England after this second voyage he was knighted. In 1808 he left Canada for good, and eventually settled down to the life of a Scottish laird, dying in his fifty-second year.

That on the commercial side Mackenzie was a man of wide views is shown by his proposals in 1802 to Lord Hobart, the Colonial Secretary, to form a union of all the fur companies, the East India Company and the South African Company, for a pooling of their interests. Had it materialized, such a great commercial organization, embracing Canada, the Pacific and the Far East, would undoubtedly have fostered a great system of commercial Imperialism.

E. A. P.

HUMPHREY COLE, INSTRUMENT MAKER

THE GREAT ASTROLABE and other Scientific Instruments of HUMPHREY COLE. By R. T. GUNTHER, M.A., HON. LL.D. *Oxford: printed by John Johnson for the Society of Antiquaries of London* 1927. 12×9 *inches; 273–317 pages; plates and text-illustrations*

THIS paper, read 17 June 1926 before the Society of Antiquaries, has since been published in *Archæologia*, vol 76, 1927. Dr. Gunther is to be congratulated on bringing together in one paper all the information he has accumulated from various sources, dealing with the work of Humphrey Cole, the "father of English scientific instrument makers." To those interested in the craftsmanship displayed by great makers of the past the many excellent illustrations in the paper will afford a convenient reference, second in value only to the instruments themselves. The instruments described are preserved in the British Museum (6), Oxford University (4), St. Andrew's University (2), Greenwich Hospital, and at Edinburgh; the example in the Mensing Collection is also mentioned. They include astrolabes (2), armillary sphere, gunner's compasses (2), nocturnal, theodolite, and small dials (7) of the universal or pocket type.

The two earliest examples are signed "V.C." and dated 1554 (Bodleian) and 1557 (Mensing) respectively. All the others bear Cole's name in one or other of its various spellings—Humfray, Humfrey (1574), Humphrey (1575 and later), Humfridus (1575); Coolle, Coole (1568), Colle (1569), Cole (1572 and later). The instrument of latest date is the theodolite (1586). Cole died in 1591, and Dr. Gunther gives a reasoned estimate of the date of his birth as 1520. These instruments, covering the period from 1554 to 1586, form original documents of great historical value.

In a note added 17 June 1927, Dr. Gunther gives a description, under the title 'Circular Astrological Calendar,' of the astrological astrolabe in the collection of Mr. George H. Gabb. The description is taken from the illustrations and description given in the *Illustrated London News* for 14 May 1927. This fine instrument, which bears the arms of Queen Elizabeth, was identified by Mr. Gabb as undoubtedly the work of Humphrey Cole. When complete (the rete, alidade, and plates are missing) it might be correctly described as an astrological astrolabe, or astrological planisphere, though Dr. Gunther remarks that there is "nothing of a planisphere about it."

It is unfortunate that Dr. Gunther did not include in his valuable paper any references to or descriptions of the other two instruments by Cole, both of them signed and dated, which are in Mr. Gabb's possession. The horizontal dial (1582) resembles the horizontal garden dial (1579; No. X in the paper) in the Lewis Evans collection. The theodolite (1574), a splendid example of Cole's work, though twelve years earlier in date, is probably a finer example than the instrument (No. XII in the paper) belonging to St. John's College, Oxford, which Dr. Gunther claims to be the "oldest Theodolite, using the word in its modern sense, in the world." Mr. Gabb's example was made only three years after Thomas Digges's description of the "instrument topographicall" was published in 'Pantometria.'

In his notes on the life and work of Cole, Dr. Gunther gives an account of his work as an engraver, as "dye synker" at the Mint, and of his connection with mining. By geographers and navigators Cole, apart from his important work as maker of instruments used in navigation and astronomy, will perhaps be best remembered as the deviser of the log and line for measuring the run of a ship, first described by Bourne in 1573.

Together with much interesting information, Dr. Gunther gives the "Bill for Maps and Nautical Instruments purchased by Captain Frobisher for his first voyage of discovery to the North-West in 1576." The sums "paid to Humphrey Cole and others" for the different instruments, maps, charts, and books are stated.

Some of the points relating to the use of the astrolabe, cross-staff, etc., raised in the discussion of the paper were dealt with by Captain John Davis in his 'Seamans Secrets,' 1594. According to Davis, the astrolabe "is an excellent instrument being rightly understoode and ordered," and the use of it in its simplest form (the mariner's astrolabe) was so well known by seamen that no description was considered to be necessary; only a diagram is given. The quadrant and astrolabe were for use on land or in smooth water. In any "naturall disturbance of wether," latitude was found from observations made by means of the cross-staff. D. B.

It is to be wished that more lists had been preserved of the kind recorded in connection with Frobisher's voyage, for they might throw an interesting light on the geographical notions entertained by the old navigators when starting their own work of discovery. In the present case we find that one of the maps taken was Mercator's "great Mappe Universall," no doubt the famous planisphere of 1569, commonly known at the time as the "Universalis" of Mercator. It is not clear why Dr. Gunther suggests that the map taken may have been Mercator's globe of 1552. We cannot be so confident as to the identity of the "very great Carte of Navigation," the price of which was £5 as against £1 6s 8d paid for Mercator's map. As this is particularly described as "in prente" the other will probably have been a MS. chart specially made for the voyage. One such chart, drawn by William Borough "the first of June 1576," is still in existence at Hatfield, and in his book 'The Silver Map of the World' (1900) Mr. Miller Christy suggested that this might be the "very great carte" of Frobisher's list. But its length is only 33 inches, and it could hardly be spoken of in such terms in the very list which included Mercator's far bigger map. Mr. Christy's alternative, that the Hatfield map was one of the 6 "cartes of Navigation written in blacke,' also taken by Frobisher, seems more likely to be correct.

Dr. Gunther dwells on the important place to be assigned to Cole in the history of map-making, as engraver of the Map of the Holy Land given in the "Bishop's" Bible of 1572. He considers him the "first man in England to apply the art of line engraving on copper to geographical purposes," a statement that would need revision were Mr. Box's theory that a small copper-plate map of Kent lately discussed and reproduced by him in *Archæologia Cantiana*, is that referred to by Lambarde in 1570. (The rare plan of Norwich by Cuningham is earlier still, 1558, but this is woodcut, though for fineness the work almost vies with engraving on metal.) Dr. Gunther suggests it as possible that Cole's map of Palestine was copied by Ortelius in 1579, being unaware that, though dated 1579 in the edition of that year, the same map (originally due to Tileman Stella) had already appeared in the first edition of the Atlas in 1570, from which therefore Cole probably copied his map. None the less does Cole deserve recognition as the engraver of one at least of the earliest copper-plate maps printed in this country. E. H.

REVIEWS

DR. CHARLES BURNEY'S CONTINENTAL TRAVELS, 1770–1772. Compiled from his Journals and other Sources by CEDRIC HOWARD GLOVER. *London: Blackie & Son, Ltd.* 1927. 9×6 *inches;* xxii+264 *pages; portrait and sketch-map.* 10*s* 6*d*

Dr. Burney would be known to us by his 'History of Music' and his portrait by Reynolds even if he had not had a daughter or enjoyed the friendship of Johnson. Still, it is as a member of the Johnson circle that one thinks of him, sitting with the great man at the Thrales', and talking (but not about music) as long as the fire and the candles lasted, or slipping into Johnson's room in the Temple to steal a few bristles from the hearth-broom to send to a devoted admirer, for "all the dear Burneys, little and great," had a warm corner in the good Doctor's heart. Burney's travels in Italy and Germany attracted considerable notice when they were published, and Johnson thought them elegant and entertaining, although much that was interesting in them was incorporated subsequently in the 'History of Music.' Mr. Glover has attempted the task of reducing the three volumes to one and adding portions from the MS. Journal still preserved at the British Museum, for in deference to the opinion of Garrick and others Burney excluded from the printed volumes much that related to the actual business of travelling. This Journal as a whole will probably never be printed, but Mr. Glover should have told us how much of it he has used and where. At present it is almost impossible to decide what is old and what is new. Mr. Glover's work also as editor of printed material is a little bewildering. He has taken considerable liberty with the text, and has assimilated different portions of the narrative into the main body of the work without any further distinction than a change of type. The result is not satisfactory to any one who knows Burney's books, but the story reads well. Burney met all kinds of interesting people—Rousseau, Voltaire, Mozart, Gluck, Sir Wm. Hamilton, and he heard Frederick the Great play the flute. He was a curious and practical observer, and his voyage from Munich to Vienna on a raft is an amusing episode. Mr. Glover seems to think that in selecting this method of progress Burney was the victim of a practical joke, but raft-travelling was by no means uncommon at that time and, indeed, much later. Not long before the war the men in charge of the huge rafts which are floated so skilfully down the Rhine below Mainz could often be persuaded to take in a passenger, and a very exciting journey it was.

M. L.

SPANISCHE STÄDTE: ihre bauliche Entwicklung und Ausgestaltung. Von OSKAR JÜRGENS: herausgegeben von W. GIESE. *Hamburgische Universitäts Abhandlungen u.s.w., Hamburg: L. Friederichsen* 1926. 11×8 *inches;* xviii+352 *pages;* 120 *plates and portfolio of* 27 *plans.* £3

Dr. Oskar Jürgens, who had begun in 1907, while employed at the German Embassy in Madrid, to study the history of Spanish towns and the drafts of schemes for their extension and transformation, died in 1923, leaving unfinished the manuscript of the present work, in which these studies are embodied. After his death this manuscript was sent, with his collection of plans and photographs, to the Ibero-American Institute at Hamburg, where it has now been completed for publication by Dr. Giese. To the change of authorship are probably due various misprints which suggest revision by some one who had no map either before him or in his mind's eye; really distressing is the disfiguration of the section dealing with Cordova, where *Ajerquía* is used consistently throughout to designate the older, western portion of the city, instead

of *Al-Medinat*, which in turn is used to designate the eastern, tenth-century extension.

Dr. Jürgens himself, however, does not appear to have written with a very close eye either on the contoured maps of the towns, as these appear in the most useful portfolio accompanying this book, or even on the general map of Spain. He sees the sites of towns and their interior arrangement with the eye of the town-planner; he is blind to natural conditions "controlling" the site unless these have palpable artistic value, while any development within the cities which is not artistic creation is fortuitous. Thus, when we read in the preface that his aim in the first part of the book is to explain broadly (for twenty-seven selected towns) the connection between the natural and historical *Vorbedingungen*, we have to understand by the natural *Vorbedingungen* merely the space and matter which are the materials on which the artist works; they include neither the relief, with its more or less unconscious control, nor even the soils and subsoils—a curious omission for a technical expert. Fortunately the contoured maps on the scale of 1/10,000 enable the reader to judge for himself the influence of the relief at least, and we are most grateful for them; but they are undated, although the date is of the essence of the subject. The historical *Vorbedingungen*, on the other hand, are interpreted overliberally; for many of the towns there is too much detail of the kind stated more concisely in the Baedeker Handbook. Accordingly the first part of the book, which is meant for the general reader, is really less interesting to him than the second, or technical, part, where there are not only many good things of general interest but also clearer indications of where to begin to skip.

Both parts must be read to appreciate fully the characters of the Spanish towns. Here as elsewhere the configuration of a town survives the wall which originally determined it; the network of streets survives the houses of the period to which it was appropriate; houses disappear, but their form persists. Thus the towns and streets and houses of to-day may in their respective ways be pseudomorphs. But pseudomorphism is more interesting in Andalusia and Eastern Spain than elsewhere because the walls survived so long and, still more, because in these towns mediæval means Arab. Their charm is in the harmonious blend of form and ornament of different ages, and Dr. Jürgens pays his due tribute to the artistic feeling and perception of space guiding the work of adaptation which produced this blend.

For Northern Spain the main thread of interest is the development of the Plaza Mayor, which appears in its final form as the inner court, the *patio*, so to speak, of the town. From the doubly irregular Plaza Mayor of Segovia, irregular both in form and in the architecture of its houses, those of Burgos and Madrid form terms in a scale of progression which culminates in the richly decorated and extremely regular plaza of Salamanca. No greater pleasure is afforded by this book than the study of the plazas, for which the author has had the happy idea of giving sequences of photographs, each showing the same plaza from a different viewpoint, with an explanatory diagram for each sequence.

In both Northern Spain and Southern the present is a period of rapid, and even violent, structural change for many cities. A glance at the graphs on p. 288 showing the increase of population of selected cities during the past seventy years is sufficient to explain why this should be so. The phase began in the 1860's, when the fetters of the walls were broken; the processes of change were quickened by the revival of trade following the Spanish-American War, and have been enormously accelerated by the increase of capital available for

investment in Spain since the Great War. Thus a new Spain is growing up either beside or on the ruins of the old Spain of gradual and economical adaptation. The skyscrapers of Madrid (which Jürgens places first among the cities of Europe in this respect) and the Gran Vías cut by so many towns through their old quarters express this new Spain, which is not without its canons of art or even its individuality, but which must be a rude shock to the believers in a Spain that is "unchanging." R. A.

THE ROMANCE OF THE BASQUE COUNTRY AND THE PYRENEES. By ELEANOR ELSNER. *London: Herbert Jenkins Ltd.* 1927. 9×6 *inches;* 320 *pages, and illustrations.* 10*s* 6*d*

A pleasant book of travel and historical reminiscence, dealing principally with the French side of the Pyrenees and illustrated by beautiful and somewhat unusual photographs.

A WAYFARER IN PORTUGAL. By PHILIP S. MARDEN. *London: Methuen* 1927. 8×5 *inches;* x+210 *pages; illustrations and sketch-map.* 7*s* 6*d*

This book has the merit of describing a country not very well known to tourists. The author writes at first hand of his experiences and has some interesting pages of description, but his historical information is apt to be confused. The book includes the north-west corner of Spain, and there is a chapter on Compostella. The illustrations are excellent. M. L.

THE MEDITERRANEAN AND BEYOND. By NORMA LORIMER. *London: Hutchinson & Co.* 1927. 9×6 *inches;* 288 *pages, and* 20 *illustrations.* 21*s*

This is a discursive account of a three and a half months' tour which, starting from Trieste, took the traveller to Egypt and Palestine, the return being made viâ Alexandretta, with a visit to Antioch and short stops at Cyprus and Athens. Some notes are added on Merano and Innsbruck, which were visited on the homeward journey. There is no index and no map, and the book seems needlessly large and costly for a journey covering ground relatively so familiar; but Miss Lorimer doubtless knows her own public. The material has been put together in a slipshod fashion, with many misspellings of place-names and a surprising carelessness in regard to matters of fact. Such statements as that the Sea of Galilee is "twenty minutes by automobile from Jerusalem" are not without psychological interest as showing that the unprepared traveller, without a map and without knowledge of maps, may learn almost nothing from travel. But the simplicity with which the author records her "discovery" of the fact that the Mediterranean Sea is visible from Mount Carmel disarms criticism.

ITALY IN THE RENAISSANCE: A Sketch of Italian Life and Civilization in the Fifteenth and Sixteenth Centuries. By MAUD F. JERROLD. *London: Methuen* 1927. 9×6 *inches;* xii+292 *pages, and illustrations.* 12*s* 6*d*

Mrs. Jerrold's book covers a much narrower field than her title implies. It is really a study of the intellectual and more especially of the humanistic side of the Renaissance. The most important chapters give conscientious and detailed accounts of the life and work of the leading humanists in the different Italian centres and of the intellectual surroundings of the courts at which they worked. It cannot be said that she makes their figures or their lives stand out with much vividness. The one chapter into which she manages to get enough of herself

to give it real life is that on Women in the Renaissance, in which she writes with real enthusiasm of their intellectual and general equality with men. Art plays but a secondary part in her pages, but her last chapter gives an account of the Italian poets and novelists, with specimens of translations of their works. The book is obviously the result of sound research.

ENCYCLOPÉDIE TCHÉCOSLOVAQUE. COMMUNICATIONS, rédigé par JAN SMETANA. *Paris: Bossard* 1927. 10×7 *inches;* xlii+366 *pages; illustrations and maps.* 40 *francs*

This is a highly technical and detailed compilation, in which a number of writers have collaborated, dealing with the railways, postal, telegraph and telephone services, air-lines, roads and road bridges and inland waterways of Czechoslovakia. There is a great number of illustrations and diagrams, mostly of interest mainly to the engineer. The two folded maps at the end, however, are of geographical importance, the one, on the scale of 1/5,000,000, showing somewhat roughly the relation between the railways of the country and those of the surrounding parts of Central Europe, while the other, on the scale of 1/1,250,000, is an interesting and carefully drawn map of the railways of Czechoslovakia itself. As is emphasized in the text, one of the great difficulties which the young republic had to face was that, under earlier conditions, the north-western and north-eastern sections of the Austrian railway system converged on Vienna, while the north-western part of the Hungarian system similarly converged on Budapest. Within what is now Czechoslovakia there was little in the way of connecting-lines between the two systems. Thus, when the republic was established, with its peculiar extension from east to west, the difficulties of communication between the different parts of the country were at once seen to be very great. A detailed account is given of the means adopted to get over this difficulty, and to adapt and supplement the existing lines in order to enable them to serve the needs of an independent state.

In the section devoted to inland navigation a somewhat detailed account is given of the development of the port of Bratislava, of which several striking illustrations are given. The traffic of the port has shown marked fluctuations in the post-war period, as was indeed to be expected in view of the uncertain political conditions in some of the riverain states; but it appears now to be making rapid progress. M. I. N.

ROUMANIA AND HER RULERS. By Mrs. PHILIP MARTINEAU. *London: Stanley Paul & Co.* 1927. 9×6 *inches;* xvi+210 *pages, and illustrations.* 10*s* 6*d*

The author paid three visits to România in the years 1920 and 1921. During parts at least of these visits she was a guest of the Royal household, her help and advice having been asked in the reconstruction and re-planning of some of the palace gardens. The book describes her experiences in the country, and her contacts with a number of important personages. There are some notes on the flora, and brief references to crops and the life of the peasants. Some details are also given of the journeys to and from Roumânia, but these have obviously been written only with the help of a not very retentive memory. The illustrations are mainly portraits, and generally it may be said that the book has little geographical value.

BAGHDAD: THE CITY OF PEACE. By RICHARD COKE. *London: Thornton Butterworth Ltd.* 1927. 9×6 *inches;* 344 *pages; illustrations and a plan.* 21*s*

Mr. Coke modestly explains in the introduction to this interesting and well-illustrated volume that, although works covering the history and development

of Baghdad are few, he makes no pretension to fill the gap. His task, which he fulfils extremely well, is to give as much of the city's life-story as will interest the average visitor, the English-speaking resident, and the casual reader for whom Baghdad has changed in the last few years from the dream city of the 'Arabian Nights' to a reality in which men and women live and work and quarrel and play much as in any other part of the world. Appealing thus to the general public he has, perhaps rightly, discarded the standard system of transliteration for Arabic words, and chosen spellings most in accordance with the sound in the ordinary Baghdad *patois*; and instead of burdening his volume with footnotes and references, supplies at the end a list of standard works, his indebtedness to which he freely acknowledges. There is no attempt to break new ground, the aim being to cover old ground in a new and more attractive form.

Baghdad, like so many other places of which one has heard a great deal, is sure to be disappointing to the casual visitor at first sight. Younger than Athens, Rome, Constantinople or even London, its story is largely one of continuous war, pestilence and disturbance. There are no buildings of any great antiquity, of the original city of the founder nothing is left, and the town of to-day is quite as modern and superficially quite as unattractive as any ordinary Western business place. But in order to judge Baghdad aright you must cancel foreign values and adopt those which she gives in their place. As the author rightly says, treat the Arab as a free man and as an equal and he will prove an amusing companion. Look down your nose at him and he will assume that utterly frigid way of an untrained inferior towards his betters.

The book supplies a careful history of Baghdad from its foundation in A.D. 762, but among its most interesting chapters are those devoted to "The Twentieth Century" and to "Where the Story Ends." The city entered upon the international political stage in connection with the construction of the Baghdad Railway, elements of disorder being added through Turkey's defeats in the Balkan Wars, while an increasing number of local men began to adopt the pan-Arab ideas. When the great War broke out, therefore, there were among its inhabitants both those who looked forward to seeing the end of British power in the East and there were also Young Arabs who hoped for an Allied triumph which might give them that chance of national self-development which they have now secured.

After the conquest the working life of the city had to be reorganized, and for a time the real Baghdad was submerged beneath the feverish life of a vast British Indian Camp. King Faisal arrived in June 1921, the first Constitutional Assembly was opened in March 1924, and finally, by the withdrawal of the last British infantry battalion in March 1927, just ten years after the first had entered the city, the real progress of Iraq towards independence seems to be measured.

H. C. W.

HILLS OF BLUE. By A. E. GRANTHAM. *London: Methuen & Co.* 1927. 9×6 *inches*; xii+644 *pages*; *portraits and map*. 25*s*

The book is described as "a picture-roll of Chinese history from far beginnings to the death of Ch'ien Lung, A.D. 1799." The author has made an interesting attempt to brighten a history which wearies by its repetition of rising and falling dynasties and of wars which, as Dr. Sun Yat-sen said, had never a principle at stake. The book "is not meant for the learned. Let Sinologues take warning and not waste their time on it. Its object is to cut up the solid food of their erudition into the lighter sugar-coated pills more palatable to the general reader." The emphasis is placed on the human interest of China's

history and dry facts are tricked out with "decorative detail," such as may be found, for instance, in the description of Jenghis Khan. It is hardly reasonable in a work of this popular character to look for solid contributions to our geographical knowledge. The writing is picturesque, though the facts are at times decorated almost out of recognition by the serious student of Chinese history. The book gives us a narrative of "a blood-stained chequer-board across which move a bewildering succession and alternation of figures—lofty ethical teachers, artists, poets, historians, monks, bandits, soldiers, courtiers, emperors and rebels, murderers and voluptuaries."

A COMMERCIAL HANDBOOK OF THE NETHERLANDS EAST INDIES. By P. C. COOTE, with a foreword by E. T. CAMPBELL. Second edition. *London: Sampson Low, Marston & Co. Ltd.* 1927. 101 *pages; map.* 3*s* (*Fl.*2.0)

First published in 1924, it is hoped in the future to issue this little handbook annually. Its object is "to inform British manufacturers and others interested in commerce as to the present position of Trade and Industry in the Netherlands East Indies." Statistics are given up to September 1926. In general a short and useful summary, here and there brevity leads to inaccuracy, and it is a little surprising to learn that new oilfields "are continually being found."

L. D. S.

SPORT AND TRAVEL IN THE HIGHLANDS OF TIBET. By SIR HENRY HAYDEN and CÉSAR COSSON. *London: R. Cobden-Sanderson* 1927. 9×6 *inches;* xvi+262 *pages; illustrations and a map.* 21*s*

Hayden was an ideal traveller, for he was a trained geologist, a keen sportsman, and an excellent hand at getting on with the people of a country. As a geologist he had long desired to reach the area of Central Tibet occupied by the great lakes. And by a curious chance he was actually invited by the Government of Tibet to visit that very region. The Tibetans were not interested in geological problems. They were interested in gold. And whether or not he found gold enough to make the fortunes of the Tibetan Government Hayden is too discreet to say. But he gives an interesting account of the geology of that desolate windswept region. And he has filled in gaps in our geographical knowledge, and thus connected up the work of Ryder in 1909 with the work of such previous travellers as Littledale, Sven Hedin, and Rockhill.

He was also able to put in useful work in quite a different part of Tibet—the narrow wooded, warm and well-watered region to the south-east of Lhasa.

Travelling in the service of the Tibetan Government every facility was of course given him, and he was received with the greatest cordiality by the Dalai Lama and the Tsarong Shapé. The result is a book and map of great geographical value. And it seems to show that Tibet which has disowned Chinese authority is probably the most orderly part of the old Chinese Empire.

F. E. Y.

SIR JOHN CHARDIN'S TRAVELS IN PERSIA. With an Introduction by BRIG.-GEN. SIR PERCY SYKES. (The Argonaut Press. Editor: N. M. Penzer.) *London: Argonaut Press* 1927. 10×7 *inches;* xxx+287 *pages, and* 7 *illustrations.* 28*s*

Chardin, though French by birth, finds a place in our *Dictionary of National Biography* and has a monument in Westminster Abbey, yet there is still no complete English edition of Chardin's works, and Mr. Penzer deserves our gratitude for the reissue of these volumes of the *Travels* for the first time since

1724. The production, like the earlier reprints of the Argonaut Press, leaves nothing to be desired; for such paper, typography, and binding the price of the book cannot be considered excessive, even abstracting (in the pleasant habit of bibliophiles) the value of the contents. Sir Percy Sykes contributes an introduction, containing all that is necessary to put the reader in touch with the situation up to the point at which, "Being arriv'd at *Ispahan*," he is left alone in Chardin's company, undistracted by editorial interruptions in the form of notes or commentary. And what excellent company he makes! Whether he is relating the prolonged duel of wits between the court officials and himself over the purchase of his plate and jewels, or the history of the French, English, Dutch, and Portuguese establishments, or describing the natural history of Persia or the manners and customs of its people, he is natural, full, and to the point, never straining after ornament, and yet achieving a peculiar effect of richness by the casual details and explanations which flow of themselves out of an intimate knowledge of his subject.

Chardin's work is not now likely to offer anything new, though much of interest, to the geographer. It is rather to the student of international history that its value remains undiminished. He and his fellow-travellers throw a flood of light on a rather dark period, and their observations often have a much wider application. The gulf between feudal absolutism and oriental despotism could scarcely be better understood than by studying, through the eyes of this subject of Louis XIV, the court of Persia, where (to take but one instance) a Prime Minister, venerable by his character no less than by his office, could be periodically subjected to the worst humiliations. The special interest of the book lies in Chardin's attitude towards the Persians and his sober judgments, unbiassed by either nationalist or religious prejudice. He stood at the opening of a new era, when the West was just beginning to realize its material superiority over the ancient East, and he has much to say about relations between Europeans and Orientals that can still be pondered with profit. Had Western trade always had such representatives as Chardin, or had its relations with the East always been directed by men of such genius as Colbert, the course of history would have run in very different channels. H. A. R. G.

THE NEW KOREA. By ALLEYNE IRELAND. *New York: E. P. Dutton & Co.* 1926. 9×6 *inches;* xiv+354 *pages, and a map.*

This detailed account of the Japanese administrative system in Korea has the advantage of being written by one who has made a lifelong study of home and colonial governments and is free from either a Japanese or anti-Japanese bias. A slender geographical introduction, adequate for the author's purpose, is followed by an able summary of the events leading up to the annexation of Korea by Japan in 1910. From its geographical position of necessity a buffer state between China, Japan and Russia, Korea succeeded in maintaining comparative domestic peace for several centuries by observing that rigid seclusion which earned for her the title of the Hermit Kingdom. Japan recognized the independence of Korea in 1876, but the constant intrusion of China upon the field of Korean domestic affairs led to the Chino-Japanese War of 1894–5. The difficulties of later years culminated in the annexation of 1910. The author passes over the years of harsh military rule from 1910 to 1919 and concentrates on the progress which has taken place since Viscount Saito became Governor-General after the Independence movement of 1919. The administrative system is described in detail, and the final three chapters deal with recent economic development—undeniably very great. It is difficult to escape the author's conclusion that "Korea is to-day infinitely better governed

than it ever was under its own native rulers, that it is better governed than most self-governing countries, that it is as well governed as any of the British, American, French, Dutch and Portuguese dependencies, and is better governed than most of them." L. D. S.

PAPERS ON THE ETHNOLOGY AND ARCHÆOLOGY OF THE MALAY PENINSULA. By IVOR H. N. EVANS. *Cambridge: University Press* 1927. 9×6 *inches;* viii+164 *pages; and* 43 *illustrations.* 15*s*

Most of the material in Mr. I. H. N. Evans's latest book has already appeared in the *Journal* of the Federated Malay States Museum or in the *Journal* of the Royal Asiatic Society, Straits (now Malayan) Branch, but it is well that it should be published in more accessible form. As he showed in his former book, 'Studies in Religion, Folk-lore and Custom in British North Borneo and the Malay Peninsula,' Mr. Evans has been doing valuable work in his research into Malayan folk-lore and kindred subjects, and the present papers give the results of his further observations. The book is divided into four parts, the first consisting of papers on the Pagan Races, which include some interesting notes on the little-known negritoes of the Peninsula; the second, of two papers on Malay Beliefs, lucky and unlucky kĕris measurements, and two on Malay methods of divination; part three deals with subjects such as the manufacture of damascened spear and knife blades, filigree work and the Malay fire-piston; and part four, devoted to archæology, summarizes the author's investigations into neolithic stone implements, cave dwellers, megaliths found in Negri Sembilan, and the ancient structures on Kedah Peak. This last section is in some ways the most important in the book, and marks a definite advance in our knowledge of the former inhabitants of the Peninsula.

Mr. Evans's method is admirable throughout. He is no armchair scientist. He writes from personal knowledge and observation; he never attempts to generalize, and he is always careful to give full details as to the source of his information. The F.M.S. Government is fortunate in having an officer so able, so interested and so well trained in all matters pertaining to anthropology and archæology. O. R.

ZWISCHEN DEM TEUFEL UND DEM ROTEN MEER. Von WOLFGANG VON WEISL. *Leipzic: F. A. Brockhaus* 1928. 8×5 *inches;* 318 *pages; illustrations and sketch-map. M.*

Herr von Weisl was sent on behalf of German and Austrian newspapers to examine the political situation in Arabia in 1925–26, and his book consists for the great part of his periodic communications. As a student of Near East politics he knew beforehand the main outlines of recent Arabian affairs, and to what quarters to direct his inquiries, though he was not always successful in his quest for further enlightenment. In the event, his journey was confined to the Red Sea littoral: at Jidda he had an audience with Ibn Saud, who gave him his version of Hussein's expulsion from the Hejaz, in which he made himself appear as being the creature of circumstance, and refused him permission to proceed into Nejd to study the Wahabbite movement. He was likewise unsuccessful at Hodeida in his request to visit the 'Iman Yahga at San'a. (The "Teufel" of his title does not refer to any Arabian potentate.) Returning thence to Asir *viâ* Kamaran island—an island of peace in the troubled waters of Arabian politics—he interviewed its ruler and also the exiled Grand Senoussi, still harbouring dreams of an eventual return to power. His adventures finally concluded with a shipwreck on a coral reef during his return voyage to Jidda. He has naturally much to say of British policy in Arabia, but undue bias is

not apparent. Some of his chapters are of the nature of a counterblast to Lawrence's version of the Hejaz war. His book therefore, apart from his political disquisitions, is the record of an observant sojourner's impressions of present-day life and conditions in Arabian Red Sea ports, not devoid of humour. He promises a further book to contain his geographical material.

THE OCCUPATION OF HAUSALAND, 1900–1904; being a translation of Arabic letters found in the house of the WAZIR OF SOKOTO, BOHARI, in 1903. Edited by H. F. BACKWELL. *Lagos: The Government Printer* 1927. 9×6 *inches;* 80 *pages*

The letters which comprise this volume were found in Sokoto when it was captured by the British in 1903. They were then of considerable political value, but with the passage of time they have also acquired historical interest in view of which it has been wisely decided to publish them.

The letters are mostly addressed to the Sarkin Musulmi by provincial emirs and chiefs. They throw an interesting light on the unsettled state of the country, the raiding and counter-raiding of the pagans and the petty squabbles between local chiefs. It is surprising to find the Sultan being troubled with many trifling grievances and complaints.

Of particular interest are the accounts of Rabeh's invasion of Hausaland from the native point of view and the reports sent in to Sokoto regarding the movements of British troops during their advance against the northern emirates. As Mr. Backwell remarks, this part of the correspondence enhances the reputation of Maiturare, the late Sultan of Sokoto (1915–1924), for sagacity and foresight. On the eve of the fall of Sokoto he offered counsel of exceptional wisdom.

The book is one which will prove of considerable value to administrative officers. Although it is probably not intended for a wider public it contains information of more general interest. Its value in this respect is increased by an admirable introduction, which gives a useful summary of the history of the Fulani empire and of the British occupation. E. W. B.

THE BRITISH WEST AFRICAN SETTLEMENTS, 1750–1821. By EVELINE C. MARTIN. *Royal Colonial Institute, Imperial Studies No.* 2. *London: Longmans, Green & Co. Ltd.* 1927. 9×6 *inches;* xiv+186 *pages, and sketch-maps.* 7*s* 6*d net*

In recent years much attention has been directed to the rôle in the Empire played by British Tropical Africa. This is a reversion to the attitude of statesmen and economists of the eighteenth century, who particularly favoured the African trade because its pursuit did not involve the country in extensive wars or drain it of men and treasure, while above all supplying labour for the American colonies. This contrast with the nascent Indian Empire was reflected in the administration of the West Coast settlements. Miss Martin deals with the period following the end of the Royal African Company, when the nominal control of the coast from Cape Sallee to the Cape of Good Hope was entrusted to the "Company of Merchants trading to Africa" in 1750. This body, whose activities were in practice limited to the River Gambia and the Gold and Slave Coasts, was forbidden to engage in corporate trading. Unlike the East India Company, therefore, they depended upon an annual grant from government, and so offered little temptation to fortune hunters. It is interesting to find Burke defending the Company's administration upon one occasion. On the Coast, the main endeavour of the Company's servants was to prevent the encroachment of other foreign powers, and to avoid becoming embroiled in native quarrels. Miss Martin's book, being "a study in local administration,"

mentions only incidentally conditions of life in West Africa, but she takes an opportunity to enliven her subject where possible; applicants for the Company service, we read, were desired from the "middle class of life," but "we do not make the classics a *sine quâ non*." The period closes with the unification of the settlements under control of the Crown, with headquarters at Sierra Leone.

LE KATANGA PHYSIQUE. Par MAURICE ROBERT. *Bruxelles: Maurice Lamertin* 1927. 9×6 *inches;* 280 *pages;* 26 *figures,* 33 *plates and* 6 *folding maps*

The author of this work is the Director of the Service géographique et géologique du Comité spécial du Katanga, the organization which is at present engaged in the systematic survey and mapping of this very important region of the Belgian Congo. Professor Robert has divided his work into three parts. The first, of 126 pages, deals with the history of the penetration and development of the country; the second, of 137 pages, with the physical geography of Katanga; the third short section with cartography. In the first two sections the subject is dealt with on broad lines, showing Katanga in its proper setting in relation to the remainder of South and Central Africa. With numerous references, the first part thus gives a simple summary of the history of African exploration. In the second part the four chapters cover geology, relief and hydrography, superficial deposits, and climatology. The geology of South Africa forms the starting-point for the interpretation of the local geology of Katanga. It is evident that the soils of Katanga have not yet been studied in detail, and the description given of them is meagre and superficial. It is to be regretted, too, that the description of the physical geography does not include an account of the natural vegetation. The account given of cartographical work reveals a marked activity; by the end of 1925 five-degree sheets of Southern Katanga had been surveyed (on the scale of 1/200,000 and in part of 1/100,000), each sheet to comprise a topographical vegetation map, a geological map, and a map of superficial deposits.

Professor Robert is to be congratulated on this clear summary of the present state of knowledge concerning the physical geography of the area he refers to as "une vaste mine de cuivre que l'on met activement en valeur." L. D. S.

THE NARRATIVE OF SAMUEL HANCOCK, 1845–60. With an introduction by ARTHUR D. HOWDEN SMITH. *London: Harrap & Co. Ltd.* 1927. 8×5 *inches;* xvi+218 *pages, and a map.* 10*s* 6*d*

This is an interesting description of life in America in pioneering days and recalls a successful film produced not long ago: "The Covered Wagon," Hancock was either a leader or a teamster in the Oregon emigration of 1845, travelling with 200 others from Independence, Mo., across the Rocky Mountains to Oregon, a distance of 2040 miles. It is an exciting narrative of heroism amidst hardship and peril, in prairies, deserts and mountain, of skirmishes with hostile Red-skins, and of daily, almost hourly, anxiety lest food and water should fail. Nor did Hancock's adventures cease when he reached Oregon. He was captured by Indians, he saw the squalor and turmoil of the gold-diggings, he was shipwrecked, nearly starved, and his experiences as a trader amongst the Indians are vivid and full of excitement. Nothing seems to be known of his appearance, ancestry, or of his life after he married and settled on Whidby Island in Puget Sound, but it was here that he compiled his narrative. Unfortunately the editor tells us little about the manuscript itself. We do not even know where it now is, or whether it is printed in full. He states that it was discovered by Mr. Eberstadt of New York, who drew his attention to it,

and that is all. There is no reason to doubt the authenticity of the narrative, but editors have only themselves to blame if they arouse suspicion and distrust by offering hitherto unprinted material to the world in this unsatisfactory manner. There is no index and not even a list of contents. M. L.

PAYSAGES ET PROBLÉMES GÉOGRAPHIQUES DE LA TERRE AMÉRICAINE. Par DOUGLAS W. JOHNSON. Préface de M. EMMANUEL DE MARTONNE. *Paris: Payot* 1927. 10×6 *inches;* 249 *pages;* 80 *plates and* 52 *figures.* 40 *francs*

This book consists of a series of Essays on American Physiography. The subject-matter of the essays formed the basis of a series of lectures given at several of the French Universities, when Professor Johnson was touring that country, as " Professeur d'Echange " in 1923.

The essays are clearly written and very readable. Several of them deal with coastal geography, in which subject the author is one of our greatest authorities. The volume is divided into two parts, the first dealing with " Paysages géographiques de la Terre Américaine," and the second with " Problèmes géographiques . . ." Apart from coastal physiography the following subjects are touched on: The Grand Canyon of the Colorado, the Glaciation of the Western Mountains of the United States, River Capture in the Tallulah Region (Georgia and S. Carolina), and the Application of Physical Geography to the Solution of some Legal Problems in America. This last essay is a very attractive one.

The book may be recommended to all readers who are interested in Physical Geography. The treatment is semi-popular, and should appeal to many who are not professional geographers. The subject-matter of certain of the essays has appeared in other publications—mostly in American Journals, or in the two important works of the author, ' Shore Processes and Shore-line Development,' and ' The New England—Acadian Shoreline.' J. A. S.

A NOMAD IN NORTH AMERICA. By " BEN ASSHER." *London: R. Holden & Co.* 1927. 9×6 *inches;* 244 *pages, and illustrations.* 12*s.* 6*d.*

This book is the result of a nine-months' tour through Canada to Alaska and home through California, Cuba, Florida and New York. The author apparently had not previously travelled in America. He seldom if ever left well-known tracks and writes of nothing that is not well known, but he saw men and places with a fresh eye and records his observations and incidents of travel in a pleasing manner with many touches of humour. Perhaps the chief merits in a most readable book are that the author never generalizes on Canadian and American problems, expresses no views on prohibition, refrains from giving opinions on the future of America, finds no moral in his experiences, and is refreshingly free from prejudice. The book may be recommended not so much for its substance as for the vein in which it is written. R. N. R. B.

ON THE OLD TRAIL: Through British Columbia after Forty Years. By MORLEY ROBERTS. *London: E. Nash & Grayson* 1927. 9×5 *inches;* xiv+242 *pages, and illustrations.* 12*s.* 6*d.*

The writer of rollicking tales of the sea is here in a philosophic vein. Many years ago he wandered in America in many capacities and ultimately found himself working on the Canadian Pacific railway track in the Rocky Mountains. At length, after more than forty years, he revisited the scenes which he knew of old, and his book is the result of his travels. There is much that is entertaining but little that is descriptive of Canada to-day, and still less that compares new and old conditions. Mr. Roberts no doubt found pleasure in writing the book,

and some of that pleasure is passed on to the reader, for there is more of the author than of Canada in his pages. Many of his reflections on human nature and social conditions might as well have been written anywhere else, and though he gives a few graphic descriptions of landscape, he continually breaks the thread to record his thoughts on all manner of things. After all there are many books on Canada. One might argue that this one can scarcely be included among them, but its charm lies in its discoursiveness and the note of appreciation that permeates its pages. R. N. R. B.

TROPIC SHADOWS: Being Memories of the South Seas. By A. SAFRONI-MIDDLETON. *London: The Richards Press* 1927. 9×6 *inches;* 302 *pages, and illustrations.* 12*s* 6*d*

To those who find pleasure in reading of life among beachcombers, tramps and sailors in a setting of coral reefs, tropical seas and palm trees this book may be recommended. The author wandered where fancy bade him in New Zealand, Borneo, Papua and Samoa with apparently no other aim than enjoyment of the roving life. Few writers on the South Seas have more unusual adventures to tell, and indeed make less of them, than the author does of his life in the Bornean village after he and his Maori friend had been marooned from the crazy old ship in which he had been "shanghaied" from Auckland. It was a strange setting in which to find Haytians engaged in vodo worship and Mr. Safroni-Middleton came near losing his life. There are vivid chapters describing a tramp across the Bornean jungles and the discovery of gold, while most interesting of all perhaps are the personal recollections of the Polish mate, Kargoniowski, later known as Joseph Conrad, with whom the author made one of his voyages. The topographical detail may be vague, but the colour and atmosphere more than compensate for this want. R. N. R. B.

THE NATURE AND ORIGIN OF SOIL-POLYGONS IN SPITSBERGEN. By CHARLES S. ELTON, Dept. of Zoology and Comp. Anatomy, University Museum, Oxford. *Quarterly Journal of the Geological Society, vol* 78, *pt.* i, *pp.* 163–194; 6 *plates and* 3 *figures.*

This is a valuable addition to our knowledge of the curious soil-polygons of high latitudes, and should be read in conjunction with the paper by Messrs. Huxley and Odell in the *Journal* for March 1924. The observations were made at Liefde Bay in Northern Spitsbergen, in the summer of 1924. Mr. Elton divides his paper between the two main types of polygons—Mud and Stone Polygons. The former class is further divisible into (*a*) those produced by frost action in winter; and (*b*) those produced by drying in summer. The action of frost may be (1) direct, either causing the expansion and hummocking-up of damp mud or clay areas, or leading to the upthrusting of rock-blocks into hummocks which gradually split up into mud and gravel. It is noted also that (2) mud polygons, due to frost action, may be formed indirectly by passing through a stone-polygon stage, or even (3) in a rather obscure manner connected with the formation of ground ice. Up to the present some confusion has existed between types (*a*) and (*b*), but actually the summer drought polygons are smaller and due to processes well known in temperate regions. In the Arctic, however, these polygons are convex, and not flat or concave. The convexity is attributed to three possible causes: (1) The surface of the main polygons on which the small ones occur is itself convex; (2) boulder clay forms much stronger convexities than other soils; and (3) in certain limited areas, salinity of the soil and water erosion play a part. Later, mud polygons are often stabilized by plants.

Quite different explanations are required in the case of the stone-polygons. Two points, in particular, need consideration: (1) The marked sorting of the soil particles into mud centres and stone borders; and (2) the regularity in the size and spacing of the polygons.

The author reviews the more important theories dealing with the formation of these features, and finds that they are not entirely adequate. He then puts forward a new and attractive hypothesis, which certainly goes a long way toward the final explanation of these features. Briefly it is this: "Differential frost splitting occurs in a vertical direction, so that there are large stones above and mainly mud below. This mud forms regular hummocks, as in surface mud-polygon systems, each hummock forming the basis of a future stone-polygon centre. The stone-polygon system is thus mapped out underground before it is visible at the surface. The layer of stones tends to become thinner, so that eventually the mud centres reach the surface, and then exert a lateral pressure. The round centres push outwards when they freeze, thrusting the stones before them, so as to make ultimately a stone border in a ring. The separate rings finally meet to form a network of stone polygons." This hypothesis is actually based on various observed stages of polygon development, and on excavations. J. A. S.

A SHORTER PHYSICAL GEOGRAPHY. By Prof. E. DE MARTONNE; translated by E. D. LABORDE. Approved by the Sub-Committee for Publications of the Standing Committee for Geography in Public Schools. *London: Christophers* 1927. 8×5 *inches;* xvi+338 *pages;* 8 *plates and* 100 *text-figures.* 7*s* 6*d*

The original French edition was reviewed in the *Journal*, 65, 269, and no further details need be added here of the scope and value of the volume. It is a commonplace that the name of de Martonne is synonymous with geographical excellence.

But this translation marks an epoch in Geography teaching in this country. The scientific teaching of the subject in our Public Schools is a new departure, and one that is to be welcomed and encouraged in every way. The movement has been due very largely to the perseverance of Mr. C. C. Carter of Marlborough College, whose arduous pioneer work is now beginning to bear fruit. The Committee, of which he is Chairman, has felt the need of adequate and scholarly text-books in English, and although there are many excellent works on Physical Geography in our own tongue, there are few really suitable for *higher* work in schools. It was with this in view that the translation of de Martonne's 'Abrégé de Géographie Physique' was undertaken by Mr. Laborde.

The English edition is rather more than a literal translation: it is, in part, an English adaptation. Many maps have been redrawn so as to conform with the Greenwich meridian and Continental measurements have been converted into their English equivalents. Again, the appendices to the several sections into which the book is divided have been rendered suitable for English readers. The translator is to be congratulated upon his efforts, and we feel he has not only helped the teacher and student, but also that he has enabled the English reader to obtain an introduction, in his own tongue, to the writings of one of the first of Continental Geographers.

A few points offer themselves for criticism. At the bottom of p. 196 the reader will be confused by the description of a horst. The escarpments margining a horst are *back to back*, and do not face one another. The French edition is quite clear on this point. The other criticism has reference to the appendices. Mr. Laborde has, very rightly we think, adapted these to English needs. It

is, therefore, a pity he has not mentioned the latest editions of certain works, *e.g.* Lake and Rastall's 'Text Book of Geology' has now (1927) reached its fourth edition (the third edition was published in 1920, but 1910, the date given, is that of the first edition), and there is a later edition (1926) than that of 1912 of Schott's 'Geographie des Atlantischen Ozeans.' Perhaps Collet's 'Les Lacs' might have been added to the Appendix to Part ii, and Kendrew's 'Climates of the Continents' to the Appendix to Part i.

These small points, however, in no way detract from a good translation for which many schoolmasters will be intensely grateful. We can but hope that Mr. Laborde and his collaborators will continue, not only to translate, but also to write—as we believe they are now doing—books which will put geography teaching in our Public Schools on a sound and truly scientific basis.

J. A. S.

GEOGRAPHY AND ZOOLOGY. By AUSTIN H. CLARK. *Annals of the Association of American Geographers, Vol* 17, *No* 3, *September* 1927, *pp.* 101–145

This is a curious paper whose value it is difficult to estimate fairly. The aim, defined as the correlation of geographical and zoological facts, is sound, and so far as it is pursued some interesting points are brought out, especially in regard to the organic response to the main physical factors of the environment. But there is much to raise an uneasy doubt whether the aim as stated is the only one which has prompted the production of the paper. It can hardly be denied that such statements as that "all the animals living to-day are of the same relative standard of perfection," and "The appearance of all the major types of animal life from the protozoans to the vertebrates may well have been simultaneous," both repeated more than once, might form useful material for controversialists of a type which has been much in evidence in the United States lately. The fact that such statements are made without any reasoned discussion of evidence, and without even any indication of their bearing on very wide issues, seems to render detailed analysis or criticism of the paper unnecessary here.

SIR JOHN HAWKINS; THE TIME AND THE MAN. By JAMES A. WILLIAMSON. *Oxford: Clarendon Press* 1927. 9×6 *inches;* viii+542 *pages; sketch-maps and illustrations.* 20*s*

The present work is undoubtedly the most valuable of the many contributions made by Dr. Williamson to maritime and colonial history, and will take rank at once as the standard biography of John Hawkins. Further than that, it is a study of naval affairs which will profoundly modify many existing theories. The career of Hawkins has been employed by successive generations as a foil wherewith to enhance the brilliance of Drake. In popular estimation the former was a sordid money-grubber, notorious for founding the English slave trade. He has been depicted by Charles Kingsley, as Dr. Williamson remarks, with the garb and manners of "a stage bargee." Serious students for their part have recognized the value of his arduous task as Treasurer of the Navy, but have condemned him as a hypocrite and a jobber. As a result of the present author's extensive and scholarly research a totally different figure emerges: a richly dressed man of culture, with a sense of loyalty to the state which transcended every other motive, one who was completely master of himself, cool, level-headed, and taciturn, gaining respect rather than love. While Drake was an opportunist to the core, Hawkins could never rest content until his organization had been perfected to the last detail and every eventuality had been carefully weighed.

As with all but the most partisan of biographers, Dr. Williamson has been faced with a dilemma. To write a narrative of the hero's career almost inevitably produces distortion : if, on the other hand, an adequate account of contemporary events be included, the book loses focus and ceases to be a genuine biography. In order to avoid the danger of falsifying perspective, the author has drawn the background of the period in considerable detail. The effect is undoubtedly to present a more balanced view of the place of Hawkins in maritime history than would otherwise have been obtained, and incidentally to challenge with the authority of new and important material many ideas hitherto widely accepted. Yet as the reader is led into successive digressions, he is tempted to wonder whether he is really perusing a life of Hawkins or rather a continuation of the author's previous work, ' Maritime Enterprise, 1485–1558.' But with such a feast of good things laid before him, it would perhaps be captious to complain that the menu should have been more restricted.

The account of old William Hawkins with which the book opens at once reveals the high standard which is maintained throughout. By the use of the Plymouth Customs ledgers, the High Court of Admiralty Records (a mine of information which few but Dr. Williamson have yet probed), and other documents, the meagre details of Hakluyt are filled out, and William Hawkins is shown to be not only the earliest Englishman recorded to have frequented the Brazilian trade, but also the only one of the pioneers who combined it with similar activities on the coast of West Africa. The story also of his connection with municipal life in Plymouth provides a most interesting picture of local government under the Tudors. In the succeeding chapters two aspects of English maritime enterprise are emphasized which have been seriously neglected by historians. In the first place we are reminded by a detailed account of successive voyages that the discovery and exploration of West Africa was quite as important in English history as the opening up of America. The second aspect will come as a surprise to all but specialists on the subject. " So far," writes Dr. Williamson, " from the Spanish colonies having been a virgin hunting-ground when the Elizabethans first approached them, they had been racked and scourged by a whole generation of the French rovers, and when Hawkins first turned his eyes to the Caribbean the empire of Philip II. was well-nigh bleeding to death." From that premiss the author develops a novel theory that Hawkins, intent upon inducing the Spaniards to give official recognition to English trade with Spanish America, persistently pushed a scheme whereby, in return for such privilege, he should police the Caribbean and provide armed escort for the defenceless shipping of Philip II., his " old master." The theory is not capable (as yet) of absolute proof, and will not be universally accepted, but scholars will find it difficult to resist the weight of supporting evidence.

In narrating the disastrous third slaving voyage of 1567, the author makes use of a most valuable and hitherto unused account which he himself unearthed from the Cotton MSS. in the British Museum. His edition of this MS., which is printed *in extenso* as an appendix to the present volume, was awarded the Julian Corbett Prize, 1926, at the Institute of Historical Research. Additional details, also previously unknown, are drawn from the High Court of Admiralty records. After threading the maze of mine and counter-mine in which the cunning of Burghley and Hawkins completely duped and finally unmasked the Ridolfi plotters, we are temporarily diverted from the personal career to hear the fascinating story of the Protestant sea-rovers of France and the Netherlands, and of the international diplomacy which guided their activities.

Book III, which is entitled 'The Queen's Navy,' definitely establishes the fact that the integrity and organizing ability of Hawkins was not only responsible for a drastic cleansing of the Navy administration from shameless jobbery, but also for putting the ships into a fighting condition without which the story of the Armada might have been very different. Yet again one cannot help wishing that portions of this section had been condensed. In tracing naval administration before Hawkins assumed control in January 1578, and in describing the general events of the Spanish war, the author is (inevitably) doing little more than summarizing the previous investigations of the three great naval historians, M. Oppenheim, Sir J. K. Laughton, and Sir J. S. Corbett. The concluding chapter, which analyses the last tragic voyage of Drake and Hawkins, is however one of the most valuable. Therein the point is made that responsibility for failure was due, not to old age and lack of initiative on the part of Hawkins, but to the culpable improvidence of Drake in sailing with his own half of the fleet so overcrowded with volunteers that a speedy (and in the event fatal) shortage of victuals ensued.

On the whole, therefore, it may be said that Dr. Williamson has disposed once for all of Hawkins as the Devon sea-dog of fiction and has resurrected the very different, but far greater, Hawkins of history. His work is a storehouse of new and important material which is handled in masterly and scholarly fashion. No serious student of maritime expansion or historical geography can afford to neglect it. V. T. H.

GEOGRAPHY IN EDUCATION AND CITIZENSHIP. By W. H. BARKER. *London: University Press* 1927. 7×5 *inches;* xiv+204 *pages; illustrations and sketch-maps.* 6*s*

This important book on the Teaching of Geography is virtually the substance of lectures given by the author during recent years to teachers of Manchester and district.

Mr. Barker believes that modern geographical teaching has now achieved that distinctiveness of aim, that individuality of method and coherence of content which must be reached by any subject before it can claim to make a definite contribution to the cultural equipment of educated citizens of to-day. It follows that if a subject is to have its full educational value it must be so taught as to represent faithfully in the classroom the spirit of the corresponding movement in the wider intellectual world, which recognizes that in geography we are studying the adjustment of the life and activities of man to the conditions of his environment. Many illuminating examples of this "adjustment" are examined in the book and all emphasize the importance of a regional treatment of the subject. In studying any particular area the first task of the geographer is to examine the present adjustment of the life of man to the physical and other conditions of his environment and to describe this very carefully and accurately —a task whose importance is even yet hardly realized. The interpretation of the present "adjustment" sends the student to other subjects—history, geology, climatology, etc.—whose results are taken and used by the geographer for his own special purpose. Nor can the geography of a region be understood unless its relations with other regions, both near and far away, are studied. Finally, geographical distributions and adjustments, as well as internal and external regional relationships, are capable of both graphic and verbal portraiture. The mapping of geographical material in the geographer's characteristic way, and the development of the art of good verbal description are rightly stressed.

Much of the book is given over to the working out of progressively developed

courses of instruction for Primary and Secondary Schools, illustrated by actual examples of studies in "adjustment." Particular attention is given to the gaining of first-hand experience and to local geography. There is also a short account of the Honours Course in Geography at the University of Manchester, a valuable chapter on equipment, and a list of books which should prove of great value to teachers who are building up a subject library.

In the final chapter on Citizenship very effective use is made of quotations from the report on the "Conditions in the South Wales Coalfield" made by the Commission of Enquiry into Industrial Unrest. These quotations demonstrate the value of geography in the solution of "a civic problem in geography of a regional order." Indeed, while the book is of greatest value to those engaged in geographical teaching, it should also appeal to all who are interested in the education of the future citizens of the Empire, on which the author has some pregnant remarks in his final paragraph.

Most geographical teachers who have kept in touch with the vicissitudes of the subject during the last twenty or twenty-five years will agree that Mr. Barker has stated and expanded in this book that solid and true foundation of geographical thought that has crystallized with the experience of the years. They will also agree that the moment is ripe for stating it. L. B.

HUMAN ENVIRONMENT AND PROGRESS: THE OUTLINE OF WORLD HISTORICAL GEOGRAPHY. By W. R. KERMACK. *Edinburgh: W. & A. K. Johnston Ltd.* 1927. 7×5 *inches;* viii+232 *pages, and sketch-maps.* 4*s*

Within a comparatively limited space, Mr. Kermack gives an excellent sketch of the course of world history and its relation to geographical conditions. He disclaims at the outset a "materialistic" view of history, though in the text he leaves little unexplained by geographical environment. British and American history is treated in detail, thus providing guidance for the development of the remaining chapters which are of necessity little more than suggestive outlines. He opens with a statement of the principles of historical geography: here generalizations are difficult to avoid, but require to be received critically. Large navigable rivers may often help central governments to become established, and the sea has often served as a barrier, but there are cases when the converse is true: the history of the Rhine valley is the history of the failure of a centralized state to emerge there, and the sea is a link as well as a frontier. This Mr. Kermack emphasizes later: the fault is lack of co-ordination rather than omission. Thus, when treating of enclosures in England, he does not mention the impetus given to this movement by the wool trade, though he refers to this in a later section. Similarly, he writes of the Russians being driven by the Mongols into the good agricultural lands to the north, when they were retreating to the forests for protection, forest and steppe both offering advantages to agriculturalists as later developments showed. Except in one or two instances, the author has carried out his difficult task of compression skilfully, while making the main factors quite clear. His book should be welcomed in schools, for he never allows the interest to flag.

THE VOYAGE OF THE *CAROLINE* from England to Van Diemen's Land and Batavia in 1827–28. By ROSALIE HARE. Edited, with additional chapters, by IDA LEE. *London: Longmans, Green & Co.* 1927. 9×6 *inches;* xiv+308 *pages; illustrations and maps.* 15*s*

The *Caroline* was a vessel that sailed for Tasmania in 1827, carrying passengers, live stock and stores to the new settlements of the Van Diemen's Land Company. Mrs. Hare, the young wife of the captain, kept a diary of the voyage which is

chiefly of interest for the contemporary glimpses of life in Tasmania, Batavia, Mauritius and St. Helena. The greater part of the book is the work of Mrs. C. B. Marriott ("Ida Lee"), and consists of chapters on the early history of the lands visited by the *Caroline*. The work is done with a scholarly care for detail and accuracy, and contains some valuable material derived from various sources, including reproductions of early Admiralty charts of Tasmania and a portion of the Molyneux globe. The latter is introduced to illustrate a discussion on the route taken by Sir Francis Drake through the Malay Archipelago to the Indian Ocean. On the map of Hondius Drake is shown to have sailed south from Ternate through the Banda Sea and north of Batuliar (Flores), and so into the Indian Ocean between Java and Flores to Wynkoops Bay in the south-west end of Java. But the Molyneux globe, in the library of the Middle Temple, shows a different track for the *Golden Hind*. Emery Molyneux shows Drake's route from Ternate southward across the Banda Sea through a small archipelago which may be the Tukang Bessi islands, and then through Alor or Pantar Strait and along the south of Flores and Sumba to his anchorage in the south-west of Java. The probability of the Molyneux version of the route being accurate is enhanced by the fact that Drake as a member of the Middle Temple dined in the Temple in August 1586, as recorded in an entry in the Minute Book, reproduced in this volume. This was six years before the globe was engraved, but not impossibly a record of his route had been recorded as an achievement of one of the most illustrious members.

The chapters on early Tasmania are full and valuable, giving many details of the earliest settlements and explorations, and a collected account of the since extinct Tasmanians. The one criticism that may be offered is that it seems a pity to include within one volume such scholarly researches on lands that are widely separated and have no real link with one another.

R. N. R. B.

THE SEARCH FOR ATLANTIS. By EDWIN BJÖRKMAN. · *New York: Alfred A. Knopf* 1927. 7×5 *inches;* 120 *pages.* $2

Mr. Björkman's gatherings from the literature surrounding the Atlantis legend, whence the title of his book, and the legends of Scheria and Tarshish-Tartessos, are described by himself as a layman's excursions among old legends and new discoveries. Anyone who accompanies him on these excursions will find him a pleasant and well-informed guide, light hearted enough to think the philological game of coincidences "as intriguing as a good cross-word puzzle," and possibly as futile, and frank enough to confess that it makes him conscious of a "disconcerting circular movement"—or, in plain English, that it makes his head go round.

The book, which is written with a great deal of good sense, leads up to Hennig's table of concordances between Tartessos, Atlantis, and the land of the Phæacians; as Hennig's position is approached the author becomes increasingly categorical, accepting apparently with complete conviction the triune character of Prof. Schulten's Cerro del Trigo site on the Guadalquivir estuary, to which all roads seem now to lead.

ADVENTURES OF EXPLORATION, Book 5, Australia and New Zealand. Book 6, North America. By Sir J. SCOTT KELTIE and S. C. GILMOUR. *London: George Philip* 1926, 1928. $7\frac{1}{2}\times5$ *inches;* ix+180, ix+228 *pages; maps and illustrations. 2s and 2s 6d*

Mr. Gilmour is to be congratulated on completing, with the issue of these volumes, an excellent series of Geographical Readers. In their clearness, interest and illustrations they have never been surpassed by any publi-

cation of this nature. Though disclaiming any attempt to give a history of exploration, yet incidentally they do so in no small degree, and the more happily in not professing such an object. The last volume illustrates this. The chief explorations that gradually revealed the North American continent are given in chronological order, and with due regard to their importance and significance. The portraits and illustrations are well chosen, most aptly illustrate the stories, and are well executed. Even more commendable are the maps which in books of travel are so often overburdened with unnecessary detail. The admirably clear little maps show all the places and physical features mentioned in the text, and enable the reader to follow and understand the explorer's route without the slightest difficulty. Schoolboys and schoolgirls of to-day are fortunate in having placed before them in so clear and attractive a form these fascinating stories showing the perseverance, fortitude, and patience in face of the greatest difficulties and perils, the heroic deeds and sacrifices of their countrymen. Their elders, however great their geographical knowledge, will hardly fail to find a pleasure in a revival of their interest by a perusal of these little books. E. A. P.

THE MONTHLY RECORD

VISIT OF THE KING OF AFGHANISTAN

H.M. King Amanullah of Afghanistan, having signified his acceptance of Honorary Membership of the Society, paid a visit to the Society's House on the evening of March 22, when the Diploma of Honorary Member was presented to him, and afterwards he was shown some of the principal treasures of the Museum, Library, and Map collections.

MILK PRODUCTION IN ENGLAND AND WALES

As dealing with the one common staple in which this country is entirely self-supporting, interest attaches to a recent publication under the auspices of the Ministry of Agriculture and Fisheries entitled "The Fluid Milk Market in England and Wales." The writer of the paper, Mr. R. B. Forrester, Cassel Reader in Commerce in the University of London, was invited by the Ministry to draw up a report from an independent point of view on a subject upon which a great deal has already been written in view of the elaborate organization involved in the distribution and sale of milk and its sanitary control. The geographical interest of the study relates chiefly to the discussion of the areas of production and the centres of consumption, in each case illustrated by a map. While milk is produced in every English county, there are two main areas of intense production, one in the north-west, embracing Lancashire, Cheshire, Derbyshire and Flintshire; the other in the south-west, embracing the Wessex counties of Somerset, Dorset and Wiltshire.

The north-western area produces the most milk, especially Cheshire, with 11,800 gallons for 100 acres of crops and pasture, high production being favoured alike by a mild, humid climate, a soil of clayey and sandy loams, general flatness, and proximity to industrial areas. Incidentally, the high milk production of Lancashire, with over 8000 gallons per 100 acres, may come as a surprise to those whose impressions of that county have been gleaned solely from the railway carriage window between Preston and Warrington. The counties of lowest production, less than 2000 gallons per 100 acres, are mostly in the east from Kent to Northumberland, but an area of relatively low production occurs along the Welsh border in Herefordshire, Breconshire

and Radnorshire. The chief butter-producing counties are Cornwall, Devon, Isle of Wight, Cumberland and parts of Wales; whilst cheese is chiefly made in Cheshire, Somerset, Flintshire, Shropshire and Lancashire. Although more milk is produced in the summer half of the year (April to September) than in the winter, the excess does not bear heavily on the market, since cheese and butter conversion and condensing are more active in the summer.

As regards the movement of milk supplies, whilst every urban centre exerts its "pull" on the surrounding country or upon more distant parts, or more indirectly has some effect on the destination of the different grades of milk, there are six main consuming areas, viz. London, the South Wales industrial area, the Midland industrial area, the North-Western industrial area, the West Riding of Yorkshire, and Tyneside.

The last-named district is interesting as having to draw upon Cumberland and South-West Scotland for its full supply; but London is unique in drawing upon the whole of England south of a line from the Mersey to the Humber. The author's survey of the movement of milk to market suggests to him that organization of the fluid milk market in the interest both of the public and the producer is far more likely to be successful if it works upon consuming rather than upon producing areas, since many of the latter, such as Cheshire, Derbyshire, Staffordshire, and Gloucestershire, are borderlands upon which different markets draw. He thinks that district agreements between producers and dairymen for the six main areas above mentioned would cover practically all non-local milk which moves to the fluid market.

THE FRENCH DISTRICT OF HAUT-VELAY

The general outlines of the physical and human geography of this district are vividly drawn by Mlle. H. Javaugnes in the *Annales de Géographie* for September 1927. The Haut-Velay is a kind of horst—granite in the centre, gneiss in the west—lying between the valleys of the Allier and the Loire. Eastward it plunges under the Oligocene clays of the Puy basin, while the ancient foundation has been pierced by many craters from which thick masses of basalt have been poured out. The plateaux have a diversified surface, and even where least broken are not horizontal. Agriculture is the main resource of the district, the recent eruptive deposits being suited to the cultivation of cereals, among which wheat is of growing importance: on southern exposures arable land is found up to 1200 metres. Other crops are lentils, potatoes, cole-seed, beetroot, sainfoin, lucerne, etc., fodder crops being grown over increasing areas owing to the greater attention given to cattle-rearing. This is practised chiefly in the west, where the greater humidity favours luxuriant pastures. Besides cattle, some horses are reared, the stock being reinforced by importation, partly through the Carhaix fairs; but they are little used for farm work. Calves are largely exported. Pigs are fattened from spring to December on milk products, potatoes, etc. Sheep were once reared in greater numbers than at present, the extension of wheat-growing having driven them more and more to the higher altitudes. The forests are an important asset, their character varying with the altitude. In the gorges which trench the plateau the oak, beech, ash, etc., are the principal trees, while the mountain forests, which descend to 900 metres or lower on the northern slopes, are composed of conifers, firs especially affecting combes where granite, gneiss or mica-schists are exposed. The larch and the pitch-pine appear at about 1000 metres, above which the trees become scattered, and there is a rank growth of fern, juniper, etc. Industries are almost absent, the principal being lace-making, carried on by the women in the old style. There are no populous centres, but

innumerable villages, of a picturesque and old-fashioned southern aspect. The rise in agricultural values since the war has caused the standard of living to rise in proportion. Modern agricultural machinery is making its way, and in a district where individualism is the rule, the tendency to adopt co-operative methods is somewhat remarkable. Yet many old ideas and superstitions hold their own, and one still hears the romance patois, with some words of pure latin. The writer sums up the character of the Velay peasant as follows: "Travailleur acharné, frugal, bavard, familier (là-bas tout le monde s'appelle par son prénom, qu'on s'addresse au patron ou au maire, peu importe), sceptique, pratique et pourtant passionné, le paysan a les qualités de l'homme du Nord, et les défauts de l'homme du Midi, comme le climat des hauteurs tour à tour brûlants ou glacées."

GLACIER OBSERVATIONS IN DAUPHINÉ

Since noticing vol 5 of the *Etudes Glaciologiques* issued by the French "Service des Forces Hydrauliques" (*G.J.* 68, 522) we have received vol 6 of the same Etudes, brought out under the editorship of M. André Allix, which has a more restricted scope than most of the previous volumes, in that it is concerned with Dauphiné only. It consists of three parts: the first a list of all the important publications on the subject (mainly original reports), arranged in chronological order of the observations, with a statement in each case of the particular glaciers reported on. Owing to the comparatively recent inauguration of precise observations only half a dozen items are listed for the years before 1889, but from that time on few years are entirely without at least one entry. The second part is a recapitulation, glacier by glacier, of the principal results gained since observation was begun, under the headings of depth of snow in the upper region and the variations at the glacier ends. In the third, the actual reports of observers for the years 1909 and on are printed for the first time. As in other volumes of the series the work presents a large body of detailed facts, with little attempt at general conclusions except for individual glaciers, so that it does not lend itself to summary notice. For more general conclusions the editor refers students to his volume 'Grenoble et sa Région,' published in 1924, and to his geographical monograph on the Oisans which was shortly to appear. The chief attempt at a general summary in the present volume is the contribution by M. Mougin on the historic variations of the glaciers of the Grandes Rousses, which appears somewhat unexpectedly in the reports of observations forming the third section. By the help of such documents as are available the areas occupied by ice in 1830, 1853, and 1905 are calculated for each glacier of this group, the result being to show that, taken as a whole, the ice covering has been in progressive diminution for a century, the loss having been some 13·3 per cent. between the first and second dates, and 42·9 per cent. between the first and last. There have, however, been temporary advances in certain cases, and a parallelism can be traced between the advances in this massif and in that of Mont Blanc.

VEGETATION OF THE RUSSIAN PLAINS

The *Journal of Ecology* (vol 15, No 2, 1927) contains the translation from the German of a paper by Prof. Boris A. Keller, of the Agricultural College at Voronej, on the "Distribution of Vegetation on the Plains of European Russia." In the extensive plains of Eastern Europe, Western Asia, and Turkestan, a definite zonal distribution of soils and vegetation, in accord with zones of climate, is found, in the following sequence from north to south: *tundra*, *taiga* (coniferous forest), grass steppe, semi-desert, and desert. This

fundamental zonation, however, is complicated by the increase of climatic continentality from west to east as well as by local variations of topography and geology. The chief historico-geological factors in this distribution were the great glaciers in the north which formerly covered most of the plains, and the waters of the Caspian Sea in the south, which at one time spread over much of the south-east. The northern region shows the typical moraine landscape, whilst the southern shows the influence of water. With the disappearance of the ice and the retreat of the Caspian waters enormous areas were thrown open to colonization by vegetation following certain lines of immigration. Deciduous forest in Russia is chiefly represented by the oak, which occurs for the most part between the coniferous forest belt and the steppes. It shows a gradual impoverishment from west to east, not extending beyond the Urals. The herbs and grasses of the steppe vegetation, on the other hand, represent a stream which passed from east to west. On the plains of Russia the flora of the distant steppe of the Altai is strongly represented, and the westward stream of steppe plants at one time reached even to Southern Sweden and England, where certain species still linger. The various plant formations and associations of the broad zones of vegetation are dealt with in considerable detail, but of more general interest are the maps showing the distribution in Russia of common European trees. The beech, *Fagus sylvatica*, does not advance farther east than Poland; the ash, *Fraxinus excelsior*, advances into the heart of the country; whilst the oak, *Quercus pedunculata*, is, as aforesaid, arrested at the Urals, being limited north-eastward by spring frosts, and south-eastward by the drought and high winds of the steppe region. (We may suppose that such definitions of range are to be taken in a generalized sense, and that island outliers may occur well without the proper limits of a species.) At the Ural limit the oak has developed a special variety adapted to the stress of climate.

It will probably come as a surprise to many that the oak in Russia only exists, so to speak, on sufferance; yet in a paper lately noticed in the *Journal* (68, 280) the oak in Russia was taken as the index tree of a certain grade of climatic oceanity. While mild oceanic climates are in general more favourable to tree growth than continental ones, it may be noted that spruce and pine push farther north in Siberia than elsewhere in the Arctic region.

TERRANOVA, SICILY, TO BE RE-NAMED

Through the courtesy of the Secretary of State for Foreign Affairs we are informed that the Italian Government has recently changed the name of the city of Terranova, on the southern coast of Sicily, to Gela. This is the name of the ancient city, founded by Cretan and Rhodan colonists in 658 B.C., the site of which was probably identical with that of Terranova.

AGRICULTURE IN THE DECCAN: ERRATUM

In the March number of the *Journal*, p. 284, l. 18, the names "Telingana" and "Marathwara" should be transposed.

THE SUDAN

The 'Report on the Finances, Administration and Condition of the Sudan in 1926' (H.M. Stationery Office, 1927) describes the country as having experienced a "hard buffeting" during the year, from which it has emerged successfully, and outlines the course of future development. The Report brings out strikingly the value of the Gezira irrigation area. The cause of the economic difficulties was the insufficiency of the rains, which resulted in a shortage of grain throughout the country, and in the failure of the rain-grown cotton crop, especially in the central provinces. The cotton crops at Kassala

and Tokar were also disappointing. The grain shortage was met by imports from Egypt and India. This, replacing the customary grain export balance, consumed a considerable proportion of the profits from cotton-growing. Ginned cotton and seed accounted for 63 per cent. of the public exports of the Sudan, followed by gum arabic, 17 per cent., the remaining exports being cattle, sesame and ground nuts. It was therefore fortunate that the season was particularly good on the Gezira irrigation area. 80,000 feddans were under cotton, and the yield was 4·85 kantars per feddan. This is one of the best recorded, that for the previous season being 2·34 kantars only. The total output approached 90,000 bales. The following season the area under cotton was to be increased to 100,000 feddans, and the Government also concluded an agreement by which ultimately the total area under cultivation will be 465,000 feddans, of which 155,000 will be under cotton. The value to the country of this staple crop, particularly under the economic conditions of the year, will be realized. It is difficult to estimate its effect upon the general standard of living of the population: it is noted, however, that compared with twenty years ago, the Sudan spends ten times as much on sugar, and thirteen times as much on tea.

Various improvements to communications are noted in the Report. The accommodation at Port Sudan was being extended, and a water supply from Khor Arbat, 18 miles away, was laid on. The extension of the Kassala Railway to Gedaref was completed in February of this year, and it is to be immediately carried on a further 145 miles to Makwar, where it will join the main Khartoum–El Obeid line. This will open up an area of more certain rainfall, and stimulate the export of crops, especially durra, which should help to stabilize prices in the northern provinces. Another public work which has recently been completed is the bridge over the White Nile linking Omdurman and Khartoum. The railway receipts for 1926 were the highest recorded, and were obtained from the carriage of cotton, gum, and sugar. The whole Report demonstrates the influence of the Gezira scheme upon the country's prosperity, at a time when the failure of the rains threatened considerable hardship.

AGRICULTURE IN AÏR

The beginnings of an export trade in agricultural products from the Aïr massif is described by Commandant Rottier in *Renseignements Coloniaux*, November 1927. The volume is naturally small at present, but is capable of expansion. Though the rainfall in the mountains north of Agades is sufficient to support pastoralists, its irregularity, in addition to the broken ground and the nomadic habits of the Tuareg, has prevented the development of agriculture on a large scale. It is probably only within the last century that it has been practised at all widely: the Tuareg formerly depended upon caravans from the south for what cereals they required. The uncertainty of this supply, and the loss of camels during the events of recent years, have caused the nomads to embark more extensively upon agriculture, and this movement has been encouraged by the French administrators, particularly in assisting them to obtain the draught animals necessary for raising water from the wells. The chief products are wheat, barley, millet and maize, also vegetables, tobacco and dates. It is estimated that about 170 hectares are under cultivation, and that 500 tons of various grains are raised annually. About half of this is available for export, as, though the whole would be insufficient to support them, the inhabitants prefer millet and sorghum. Some maize is taken to Bilma, the grain and dates to Southern Algiers and, particularly, to Kano. Arrangements are being made for this area to supply Djanet with 50 tons of

cereals annually, and the growth of this trade should restore the old north-south routes to something of their former importance. Potatoes have been grown successfully, and cotton also, but the labour scarcity militates against the development of the latter. The main requisites are supplies of artificial manures and provision for water storage, for the torrential downpours are wasteful and destructive. There is also much to be done to overcome the apathy of the natives.

WATER POWER IN CANADA

The importance of hydro-electric power in Canadian industrial progress is emphasized in a recent publication of the Dominion Water Power and Reclamation Service ('Water Powers of Canada,' 1927), which also gives a survey of present and potential power developments in each province. Though the distribution of sources of power is naturally dependent upon physiographical features, particularly the Rocky Mountains and the Laurentian plateau, it is fairly even throughout all Canadian provinces, but the important fact is that water-power resources are greater where other sources of supply are less. Thus Quebec and Ontario, with no coalfields, possess 60 per cent. of the estimated potential water-power of the country; contrarily, the southern portions of Alberta and Saskatchewan, where little water-power is available, have large coal reserves. For the development of the northern Saskatchewan mining area, there are eight potential power sites upon the Churchill River. Two of Canada's leading industries, pulp and paper making and mining, are especially benefited by supplies of cheap power. In the mining industry, it permits the treatment of masses of low-grade ore which would otherwise be left untouched. Hydro-electric development has therefore been very rapid in Canada, and her aggregate instalment is second only to that of the United States, and in development per head of population she is second only to Norway. At the present time 900 million dollars are invested in hydro-electric undertakings. The predominance of water-power appears from the fact that in the Central Station Industry, itself producing 80 per cent. of the developed water-power, falling water actuates almost 96 per cent. of the primary power equipment. It is difficult to trace the ultimate use of power, and it is differentiated only into three classes: the central electric station industry, distributing for public use, utilizes 82 per cent.; the pulp and paper industry 11 per cent., besides utilizing much from the central stations; and other industries 7 per cent.

MOUNT GEORGE DAWSON, BRITISH COLUMBIA

We have been informed by the High Commissioner for Canada that a peak (13,260 feet) in British Columbia (51° 22′ N., 125° 16′ W.), approximately 175 miles north-west of Vancouver near the head of Knight Inlet, has been named Mount George Dawson. Dr. Dawson, as a member of the Geological Survey of which he was later Director, carried out much geological exploration in British Columbia and the Yukon. He was naturalist to the North American Boundary Commission of 1875, and led the Government Yukon expedition in 1887. Dawson City is also named after him.

AMERICAN EXPEDITION TO PERU

Last June the American Geographical Society sent an expedition to Peru under Mr. O. M. Miller. The purpose was to fill in a gap in the material assembled by the Society for the compilation of their 1/M map of Hispanic America. A topographic survey was to be made of the headwaters of the Marañon river in the Cordillera north-west of Cerro de Pasco, and several traverses in the montana between that river and the Huallaga. It is reported

in the *Geographical Review*, January 1928, that the work in the Cordillera has been completed, approximately 1500 sq. km. having been covered by triangulation and topographic surveys. The Peruvian Government had done much to ensure the success of the expedition.

RAOUL OR SUNDAY ISLAND

A recent inquiry about this island in the Kermadecs caused the P.C.G.N. to refer the question of its proper nomenclature to the Geographic Board of New Zealand, which has decided in favour of Raoul on the ground of priority. The following are the accounts of the discovery of the island. De Rossel in his 'Voyage de Dentrecasteaux envoyé à la recherche de La Pérouse,' 1808 (I, 274), writes: "16 Mars 1793. . . . le soir de ce même jour, à l'instant du coucher du soleil, on crut voir dans le Nord une seconde île d'une assez grande étendue; elle fut aperçue d'abord par M. Raoul. . . . Nous passâmes la nuit à la cape; et nous revîmes la même île la 17, à la pointe du jour: elle fut appelée *île Raoul*, du nom de celui qui l'avoit découverte. . . . Cetta île est de forme triangulaire, et n'a pas plus de quatre lieues de tour. . . . La pointe Nord-Ouest de l'île Raoul est par 29° 16′ 45″ de latitude australe, et par 179° 35′ 40″ de longitude orientale."

An English translation of Labillardière's 'Voyage in search of La Pérouse,' 1800, p. 331, says: "18th [March, 1793]. . . . About six in the evening we perceived at a great distance to the north-north-west, a new island, which induced us to lay-to all night. 19th. The next morning, when day broke, we had sight of the same island toward the north, and still upwards of ten leagues distance; but about five in the afternoon we were close in with it, and had already seen the whole of its circumference, the extent of which might be about three leagues. To this island, the latitude of which is 29° 20′ 18″ south, longitude 179° 55′ east, we gave the name of Recherche. Its figure is nearly triangular." Another English translation of the same, 1802, gives the circumference as "two myriameters and a half." The discrepancies in date, position, and name in these accounts are remarkable. De Rossel was a lieutenant and Labillardière a naturalist on board *La Recherche*. There can be no doubt they are describing the same island. It must be noted that de Rossel was editing Dentrecasteaux's own journal as long as it was available.

David Collins adds to his 'Account of the English Colony in New South Wales,' 1798, a 'Conclusion: comprising Particulars of the *Britannia's* Voyage to England' [Captain William Raven], in which he says (p. 536): "Sunday the 6th [November, 1796] was passed in examining an island, which Mr. Raven was decidedly of opinion had never been seen before. It was situated in the latitude of 29° 15′ S. and longitude of 181° 56′ E. . . . From the circumstance of its being seen on a Sunday it obtained the name of Sunday Island." Again there can be little doubt that this is the same island as that seen from *La Recherche*. The descriptions of the physical features tally, and both ships had passed Macauley Island on the previous day. The name Sunday Island alone appears on Arrowsmith's chart of 1798. It is a curious coincidence that the 17 March 1793, when according to de Rossel the name Raoul Island was given, was a Sunday, though no mention is made of the fact in the narrative. The Admiralty's position for the island, observed apparently in 1854, is 29° 15′ 30″ S., 177° 54′ 52″ W. The French longitudes were presumably reckoned from Paris and require the addition of 2° 20′ to make them reckon eastward from Greenwich.

CORAL REEFS OF THE FIJI ISLANDS

An explanation of coral reef development in the Fiji Islands is advanced by Prof. W. M. Davis in the *American Journal of Science* for November 1927. After reviewing critically the theories promulgated since that of Darwin, he meets the objection to the application of the subsidence theory to Fiji by assuming movements of subsidence and upheaval. It has been shown that the limestones of reefs built up over subsiding foundations must rest unconformably upon those foundations. An examination of the elevated limestones of Fiji shows that they rest unconformably upon eroded volcanic islands, and it is inferred that these limestones were formed as atolls and barrier reefs. The well-embayed shore-lines of certain volcanic islands also support the subsidence theory. Tuvutha, with its level ring-like limestone, 800 feet high, enclosing a "moat" and an eroded central mass of volcanic rock rising over 500 feet, suggests the submergence of an eroded volcanic peak, the deposition of the limestones and the elevation of the whole. On other islands a further period of sinking is now in progress. Regarding sea-level atolls also, Prof. Davis believes that the evidence of the Funafuti boring supports the subsidence theory, shallow-water foraminifera alone being found in the main boring to 1200 feet, while deep-water foraminifera were found at similar depths on the outer slopes.

The reefs of south-east Fiji are arranged roughly in five north–south belts, from west to east, Ngau, Kambara, Ongea, Argo and Malan. The Ngau belt is one of simple subsidence and coral upgrowth: Kambara, with elevated discontinuous and unconformable reefs, suggests subsidence and later upheaval; the Ongea belt shows a three-phase development, subsidence being now in progress in the embayed and dissected islands with second generation coral growth; the Argo belt is a later stage of three-phase development; and the Malan belt, a few submerged reefs and banks, may be in a still later stage. These islands have undergone similar phases, but not synchronously. The explanation offered by Prof. Davis is that of a "slow westward migration of a broad and low ocean-floor anticline, preceded and followed by shallow ocean-floor synclines," producing the necessary subsidence and elevation periods. He acknowledges this scheme to be hypothetical only; it was evolved to co-ordinate existing evidence, not to substantiate any theory, yet it supports strongly the Darwinian subsidence theory.

SHACKLETON MEMORIAL IN SOUTH GEORGIA

On February 14 last, the Governor of the Falkland Islands unveiled the memorial over the grave of Sir Ernest Shackleton at Grytviken, South Georgia, which had been sent out in a whaling steamer by Lady Shackleton. It is a massive piece of sculpture in Scotch granite, and bears the inscription: "To the dear Memory of Ernest Henry Shackleton, Explorer. Born 15th Feb. 1874. Entered into Life Eternal 5th Jan. 1922."

GILCHRIST STUDENTSHIP

The Gilchrist Trustees again offer, for 1928–1929, a Geography Studentship of £80, tenable at any recognized school of geography, with a view to the furtherance of improved teaching of geography in schools. Applicants, who should be teachers with at least two years' experience, should send in their names to Prof. L. W. Lyde, University College, Gower Street, W.C.1, from whom further particulars may be obtained, before 22 May 1928. They must give references and a full account of their previous work, and their applications should be accompanied by three testimonials.

INTERNATIONAL CONGRESS OF AMERICANISTS

The twenty-third session of the International Congress of Americanists will be held in New York in September of this year. The subjects treated will include American archæology, the races of America, their origins, languages and relations to other peoples, the discovery and early settlement of America, and geographical and geological questions bearing upon human activities. The secretary of the Congress is Mr. P. E. Goddard, of the American Museum of Natural History, New York City, to whom inquiries should be addressed.

MEETINGS: SESSION 1927–28

Fourth Afternoon Meeting, 13 February 1928. Sir Charles Close, President, in the Chair

Paper: The Island of Tahiti. By Dr. Cyril Crossland

Eighth Evening Meeting, 20 February 1928. Sir Charles Close, President, in the Chair

Elections: Alexander Aitken; Lieut. James Baden Penrose Angwin; Dr. John Randal Baker, M.A.; Harold Percival Burgess; C. L. Collenette; Dr. Arthur W. Collins; Miss Violet Cordery; Richard Philip Henry King Deary; Devasingh, B.A.; Sir Fisher Dilke, Bart.; Frank Roy Goshawk; Major P. E. Hale; The Rev. David Ross Hewton; Miss Bertha M. M. Hocking; John F. McCourt; William Charles Mitchell; Mrs. Blair Niles; Mrs. Mabel F. Ross; Ernest Henry Selwood, M.A.; Vyvian George Symonds, B.SC.; Brig.-General Sir Samuel H. Wilson, K.C.M.G., K.B.E., C.B.

Paper: The Cambridge Expedition to Edge Island. By Mr. H. George Watkins

Ninth Evening Meeting, 5 March 1928. Sir Charles Close, President, in the Chair

Elections: Miss Beatrice Mabel Garrad-Cole; Mons. Georges Marie Haardt; Prof. Mian Abdul Hakim, B.A.; John Hudson Hall, jnr.; Mrs. Olga Hall-Brown; Norman H. Hawkins; Capt. K. J. Haywood, F.E.S.; Rai Sahib Asharfi Lal, B.A.; Major George Henry Parker, M.C.; H. J. Sanders, B.A.; Lt.-Col. J. Aubrey Smith; John Edward Smith; Frank Trainer; The Rev. George Reginald Veel.

Paper: Across the Sahara from Kano to Warghla. By Mr. D. R. G. Cameron

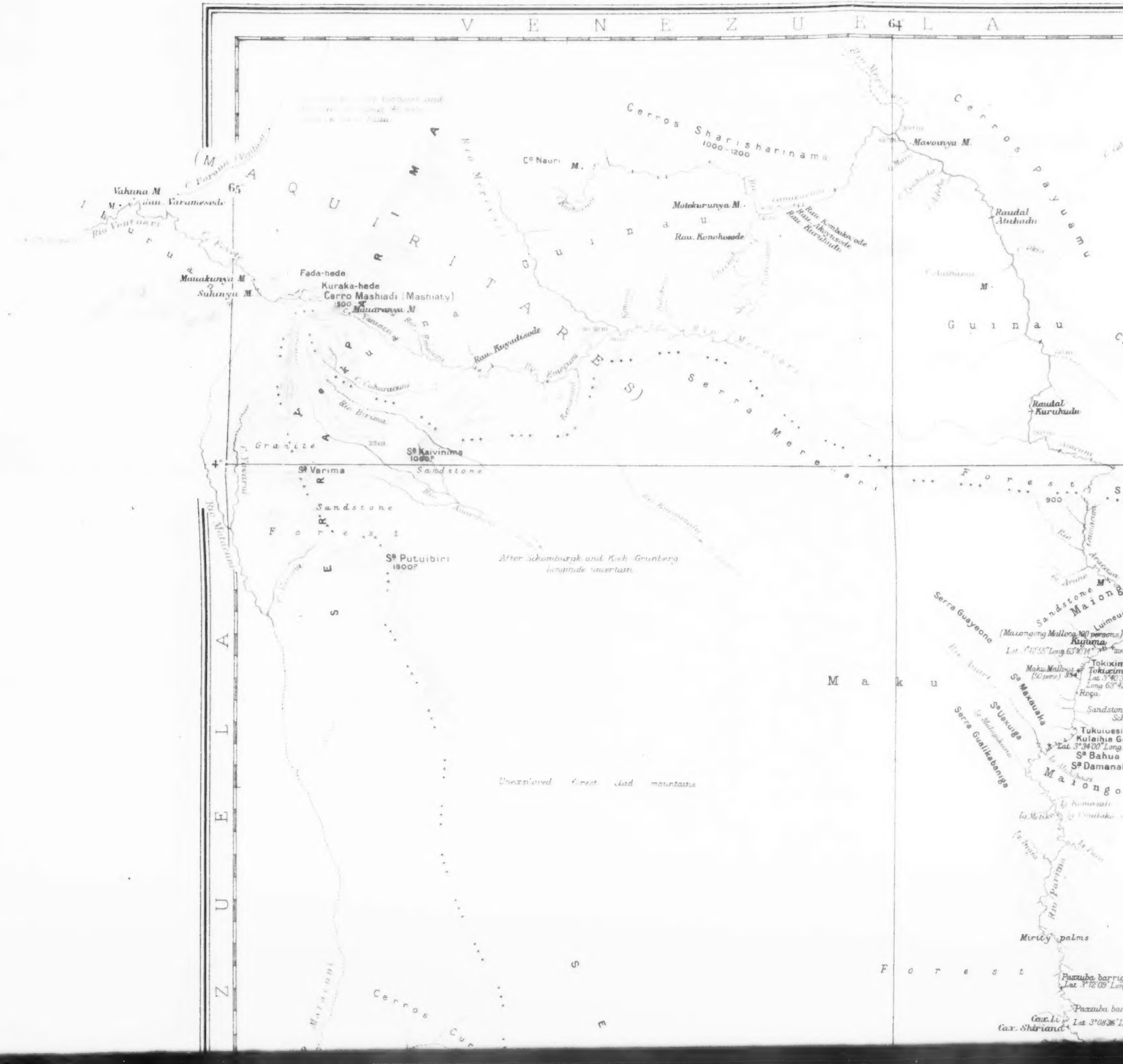
Fifth Afternoon Meeting, 12 March 1928. Sir Charles Close, President, in the Chair

Paper: Shore Topography of the English Lakes. By Mr. T. Hay

Tenth Evening Meeting, 19 March 1928. Sir Charles Close, President, in the Chair

Elections: Frederick Capping Allworth, M.B.E.; Joshua Peter Ferguson Bell; Percival Thomas Henri Crandon; Thomas William Harwood; Walter Gordon Laidlaw; Henry Leach; Miss Elizabeth Lester; Miss A. Dorothea Macfie; Capt. B. J. Marden; Albert Victor Murray, M.A.; Bedford Pollard; Syed Mohommad Tahir Rizir, M.A., LL.B.; John Joseph Robson, F.R.H.S.; Miss Constance Lindsay Skinner; Miss Olive Wyon.

Paper: From the White Nile to Ruanda. By Mrs. Patrick Ness


V E N E Z U E L A
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65
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1000-1200
Cerros Parima
Cº Nauri M.
Mavunya M.
Vahuna M.
Rau. Yaramosode
Motokurunya M.
Rau. Konohosode
Rau. Komlakaosode
Rau. Tikosisode
Rau. Kurukudu
Raudal Atuhadu
Fada-hede
Kuraka-hede
Cerro Mashiadi (Mashiaty)
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Mauakunya M.
Suhunya M.
Mauaranya M.
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Guinau
Raudal Kurukudu
Sª Kaivinima
1000?
Sª Varima
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Sandstone
Forest
Sª Putuibiri
1800?
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longitude Greenwich
Unexplored forest clad mountains
Serra Guayeone
Maiongong
Kuyuma
Tokixima
Maku Mallocas
Sª Maxauaka
Sª Uexuiga
Serra Gualikebenige
Maku
Mirity palms
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Rau. Parima
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Rau. Kasikasima
Rau. Kunuana
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Rau. Kunuanasode
Rau. Parimasode
Rau. Yaramosode
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Rau. Kasikasima
Rau. Mavaca
Rau. Kunuana
Rau. Parima
Rau. Yaramosode
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Rau. Kuyuwini
Rau. Kasikasima
Rau. Mavaca
Rau. Kunuana
Rau. Parima
Rau. Yaramosode
Rau. Vantuari
Rau. Varima

BRAZILIAN GUAYANA

Survey of the

UPPER RIO BRANCO AND THE RIO URARICUERA AND PARIMA

by the

Hamilton Rice Expedition 1924 - 25

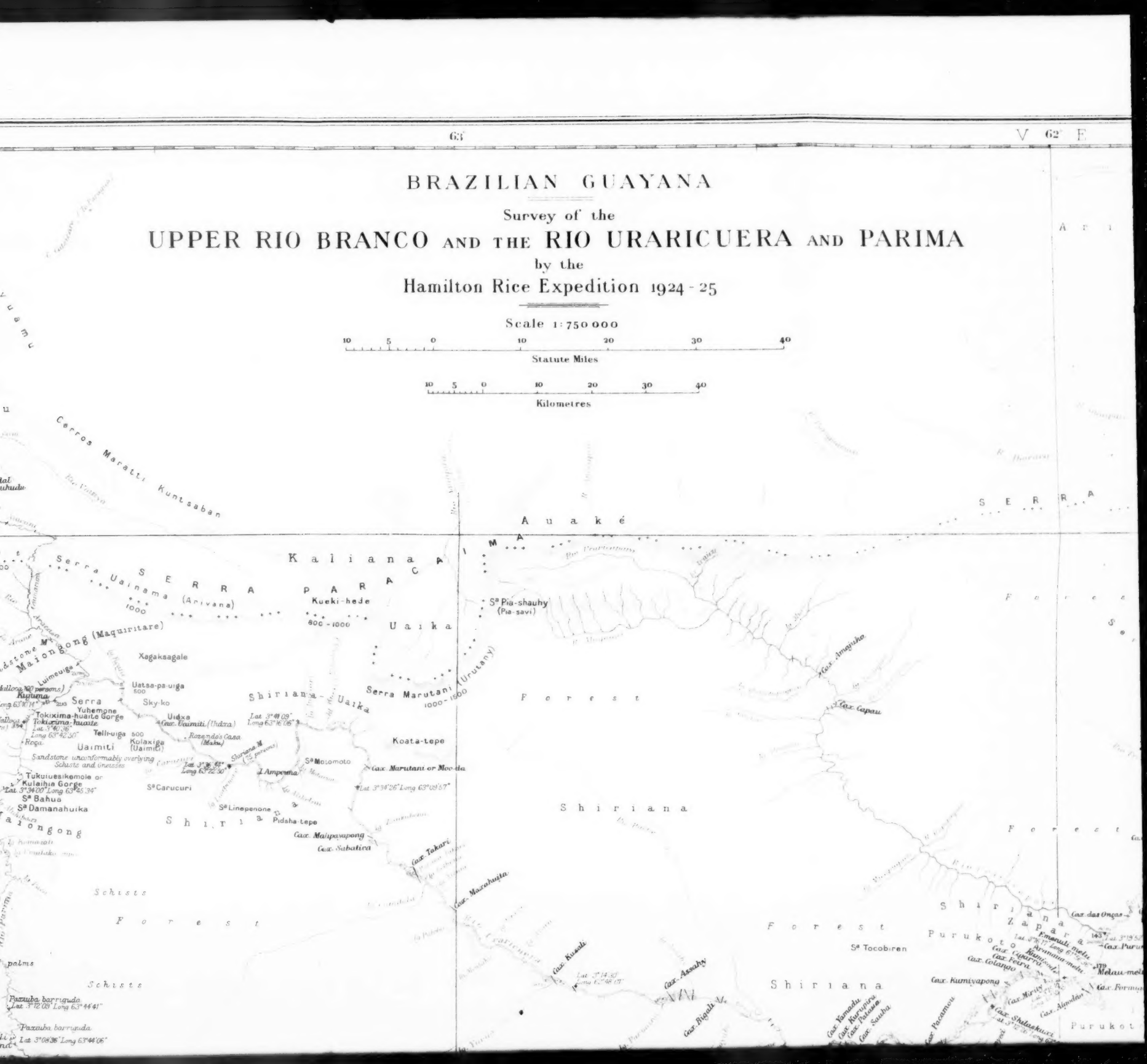
Scale 1:750 000

10 5 0 10 20 30 40

Statute Miles

10 5 0 10 20 30 40

Kilometres



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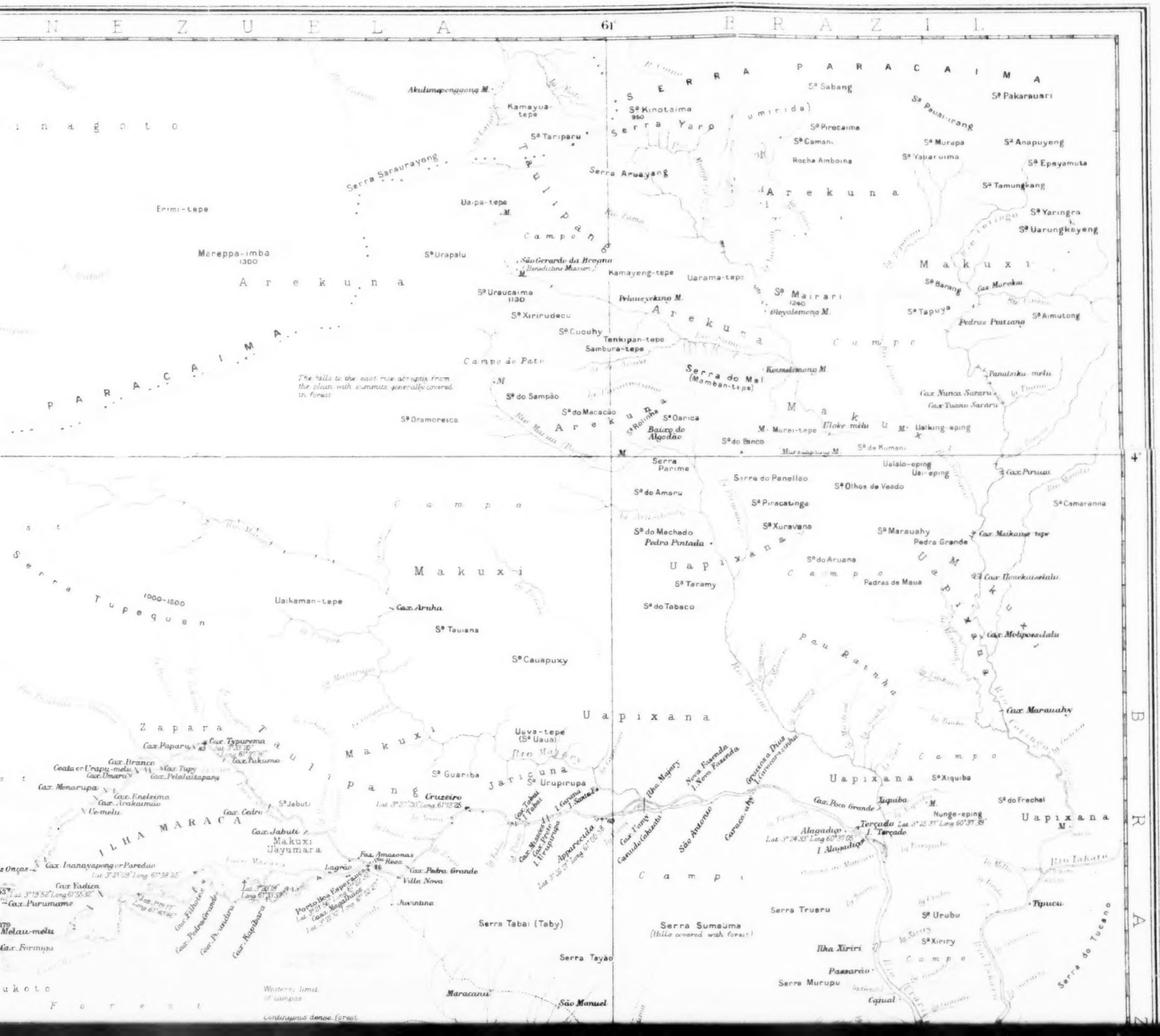
Statute Miles

10 5 0 10 20 30 40
Kilometres


V E N E Z U E L A
61°
B R A Z I L
Akulumapongaong M.
Kamayua-tepe
Sª Tariparu
Serra Sarauayong
Erimi-tepe
Uaipa-tepe
Mareppa-imba 1300
Sª Urapalu
Sª Urucaima 1130
Sª Xiriudecu
Sª Cucuhy
Tenkipan-tepe
Samburá-tepe
Campo de Pato
Sª do Sampão
Sª do Macacão
Sª Oramoreica
Sª Oarica
Baixo do Algodão
Sª do Banco
Serra Parime
Sª do Amaru
Sª do Machado
Pedra Pintada
Sª Taramy
Sª do Tabaco
Sª Tauiana
Sª Cauapuxy
Uaikaman-tepe
Serra Tupequen 1000-1800
Uauva-tepe (Sª Uaua)
Sª Guaniba
Sª Urupirupa
Cruzeiro
Sª Jabuti
Ilha Maraca
Makuxi Uayumara
Lagrão
Villa Nova
Juventina
Serra Tabai (Taby)
Serra Tayão
Maracanan
São Manuel
Serra Sumaúma (Hills covered with forest)
Serra Truaru
Sª Urubu
Sª Xiriry
Ilha Xiriri
Passarão
Serra Murupu
Canual
Tipucu
Serra do Tucano
Sª Sabang
Sª Kinotaima 950
Serra Yarp umirida)
Sª Pirecaime
Sª Caman
Rocha Amboina
Sª Yaparuima
Sª Murapa
Sª Anapuyeng
Sª Epayamuta
Sª Tamungkang
Sª Yaringra
Sª Uarungkayeng
Sª Pakarauari
Sª Pauai-irang
Serra Aruayang
Kamayeng-tepe
Uarama-tepe
Sª Mairari 1240
Sª Barang
Sª Tapuya
Sª Aimutong
Pedras Pintadas
Cax. Moroka
Pedras Pintadas
Cax. Nunca Sararu
Cax. Tucano Sararu
Panaisiku-melu
Uaiking-eping
Uaisio-eping
Uai-eping
Cax. Piruau
Sª Olhos de Veado
Sª Camaranna
Sª Piracatunga
Sª Xuravana
Sª Marauahy
Pedra Grande
Cax. Maikana-tepe
Sª do Aruana
Pedras de Maua
Cax. Uonekanaiulu
Cax. Mokpoesdalu
Cax. Marauahy
Sª Xiquiba
Sª do Frechal
Tiquiba
Alagadiço
I. Terçado
I. Alayudiçoa
Nunge-eping
Tipucu
Rio Tabaru
Rio Mahu
Rio Parima
Rio Uraricuera
Rio Auaris
Rio Pauraima
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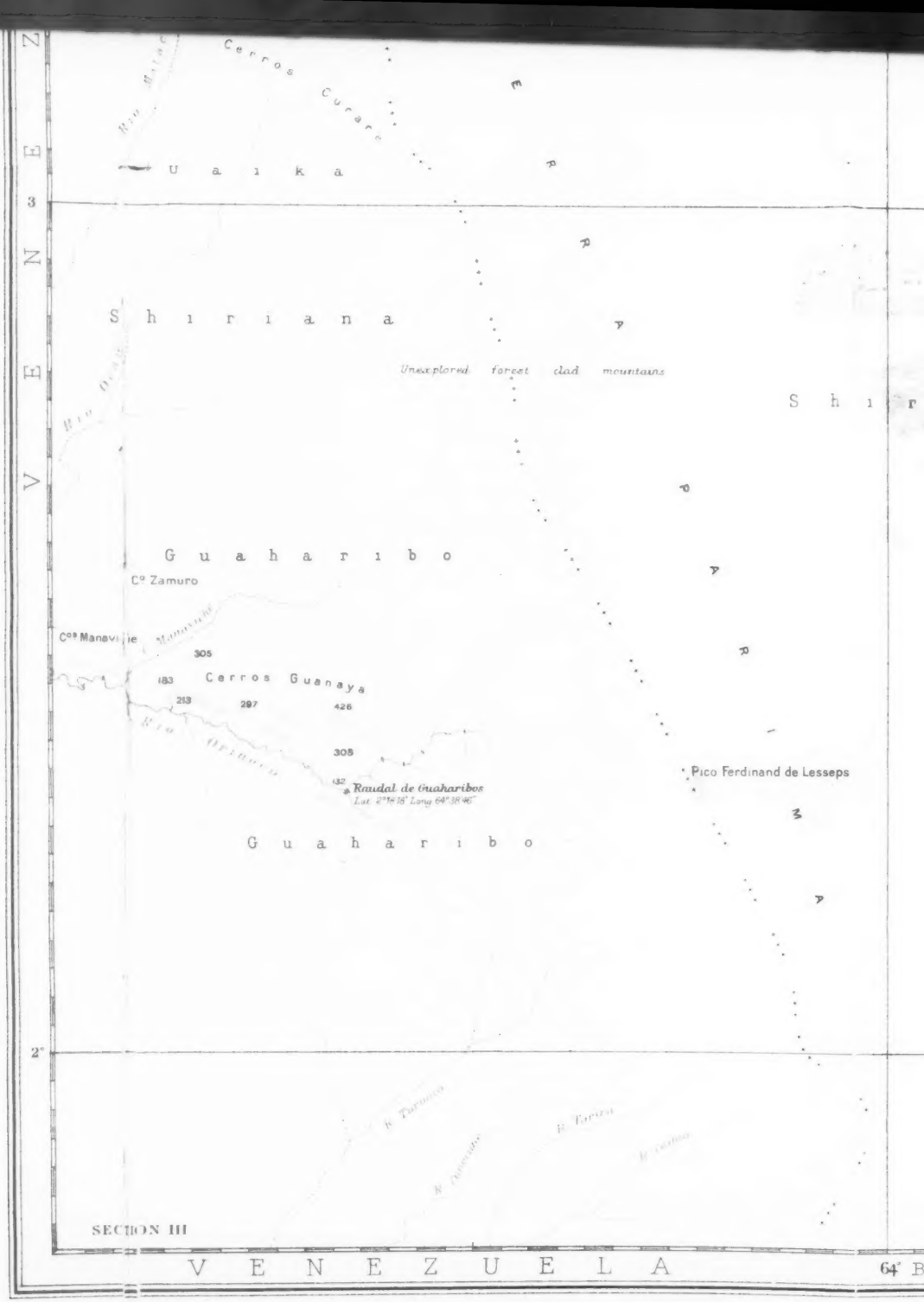
Rio Mahu
Rio Uraricuera
Rio Parima



NOTE.—By an error of the Lithographer introduced into a late proof, the heights on the first sheet, published in the February Geogr. Journal, are said to be in feet, whereas they are in metres.

The Bifurcation of the RIO URARICUERA at ILHA MARACA

Scale 1:75000

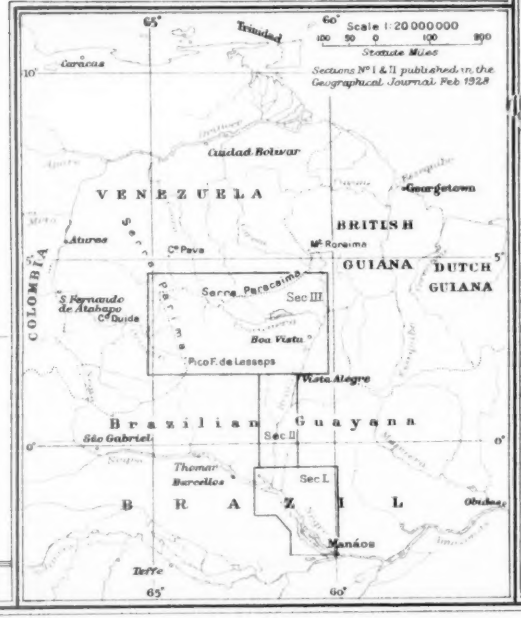
1 0 1

Statute Miles

Unexplored forest clad mountains. Only those parts visible from the upper station on the Rio Parima are indicated. Bearings by compass. Distance by estimation.

Authorities

Dr Hamilton Rice 1919-20, 1924-25	Rio Branco, Trail from Boa Vista to Boa Esperança, Rio Uraricuera, Rio Parima, Rio Orinoco
Dr Koch-Grunberg 1911-13	Rio Takutu, Rio Sumuru, Rio Araracsa, Rio Merevari, Rio Venturi
R H Blake 1912-13	Region between Rio Parime (Marua) and Rio Sumuru
H A Coudreau 1884-55	East of Rio Branco at Boa Vista
J Chaffanjon 1885-87	Rio Orinoco
Sir R H Schomburgk 1838-39	Rio Takutu, Rio Cotingo and west to Ilha Maraca, Rio Araracsa, Rio Merevari, Rio Auari, Rio Matacuni
Brazilian Commission 1882-84	Rio Majary, Rio Uraricapara



Cax. Purumame (Urumamy)

Dense forest, many palms

Emenuli-melu

Lat. 3° 16' 17" Long 61° 56' 36" 178 m.

Melau melu

Aranaua-melu

Lat. 3° 15' 18"

Long 61° 59' 35"

3 Kumisinde

Cax. Jauapery

Cax. Formiga

Cax. Algodão

ILHA MARACA

FURO SANTA ROSA

FURO

MARACA

Dense forest

61° 55'

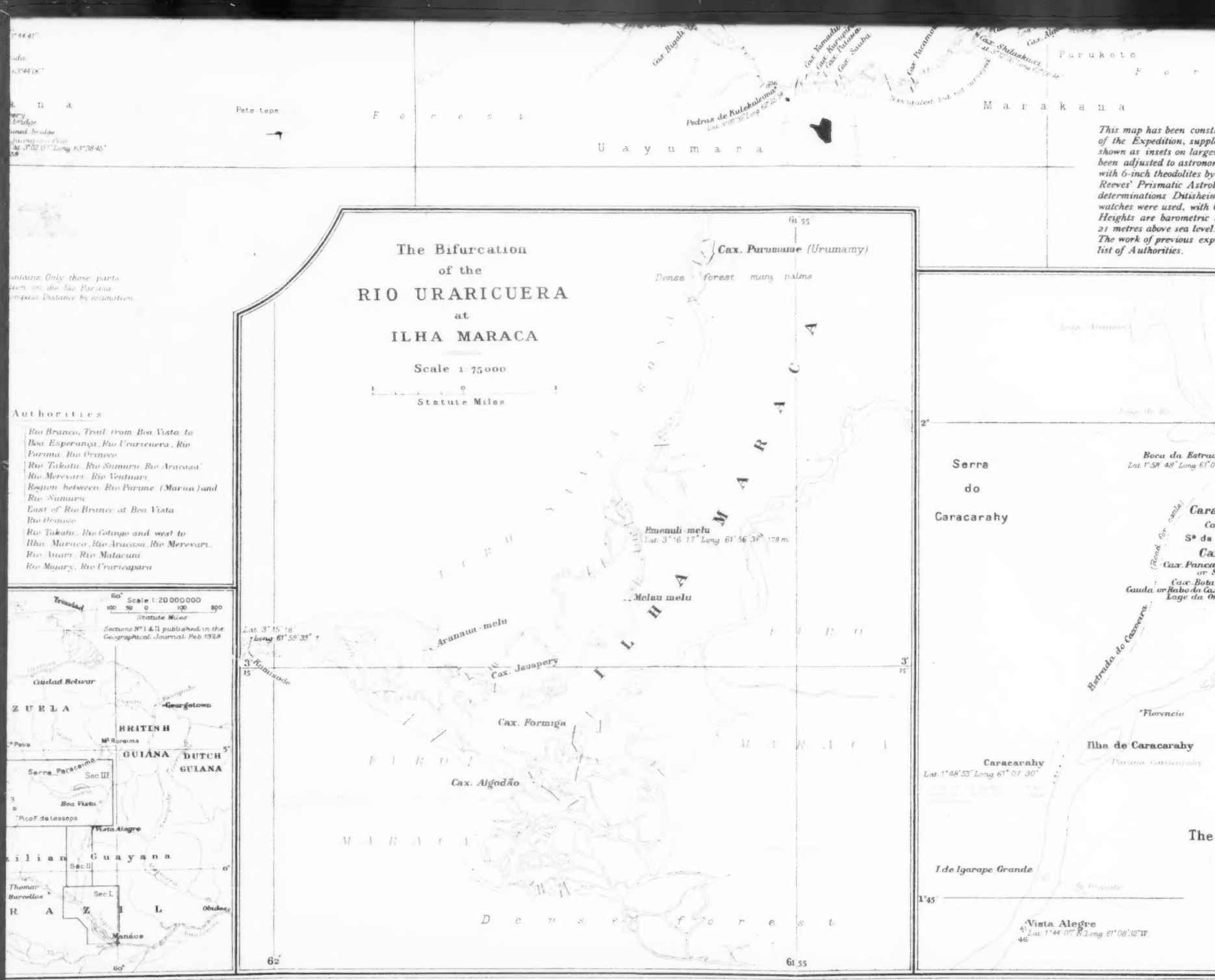
62°

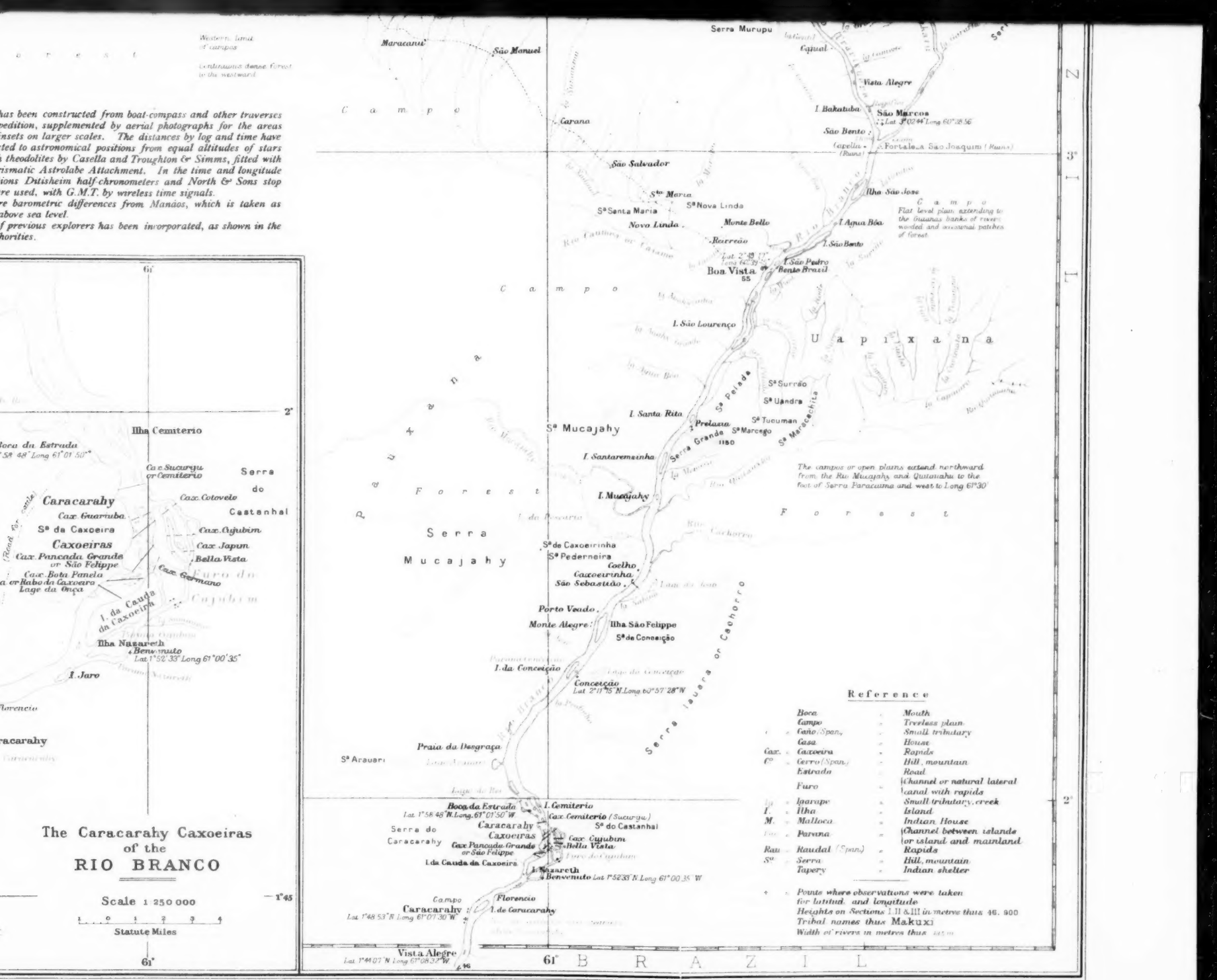
2°

3°

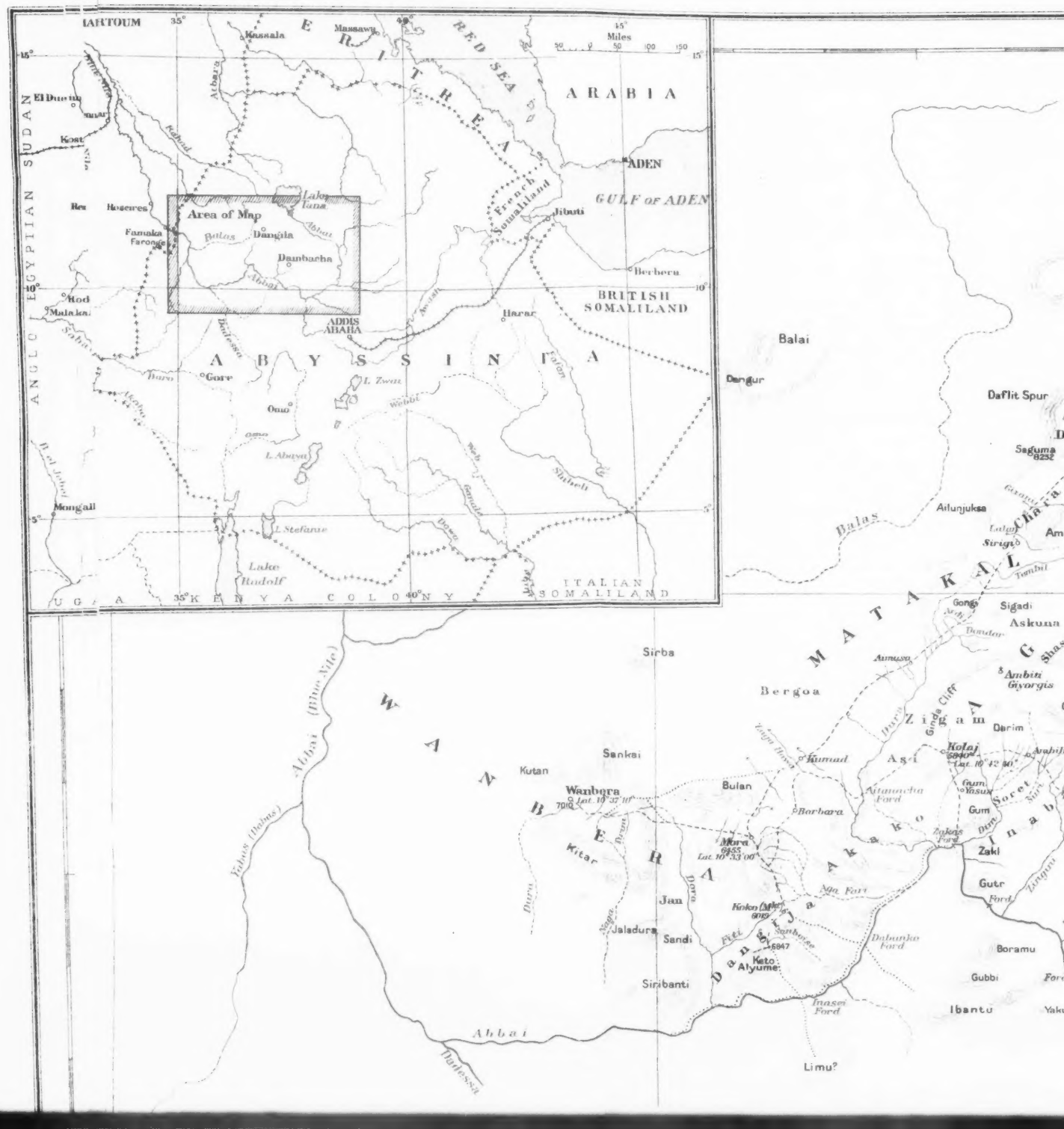
64° BRAZIL

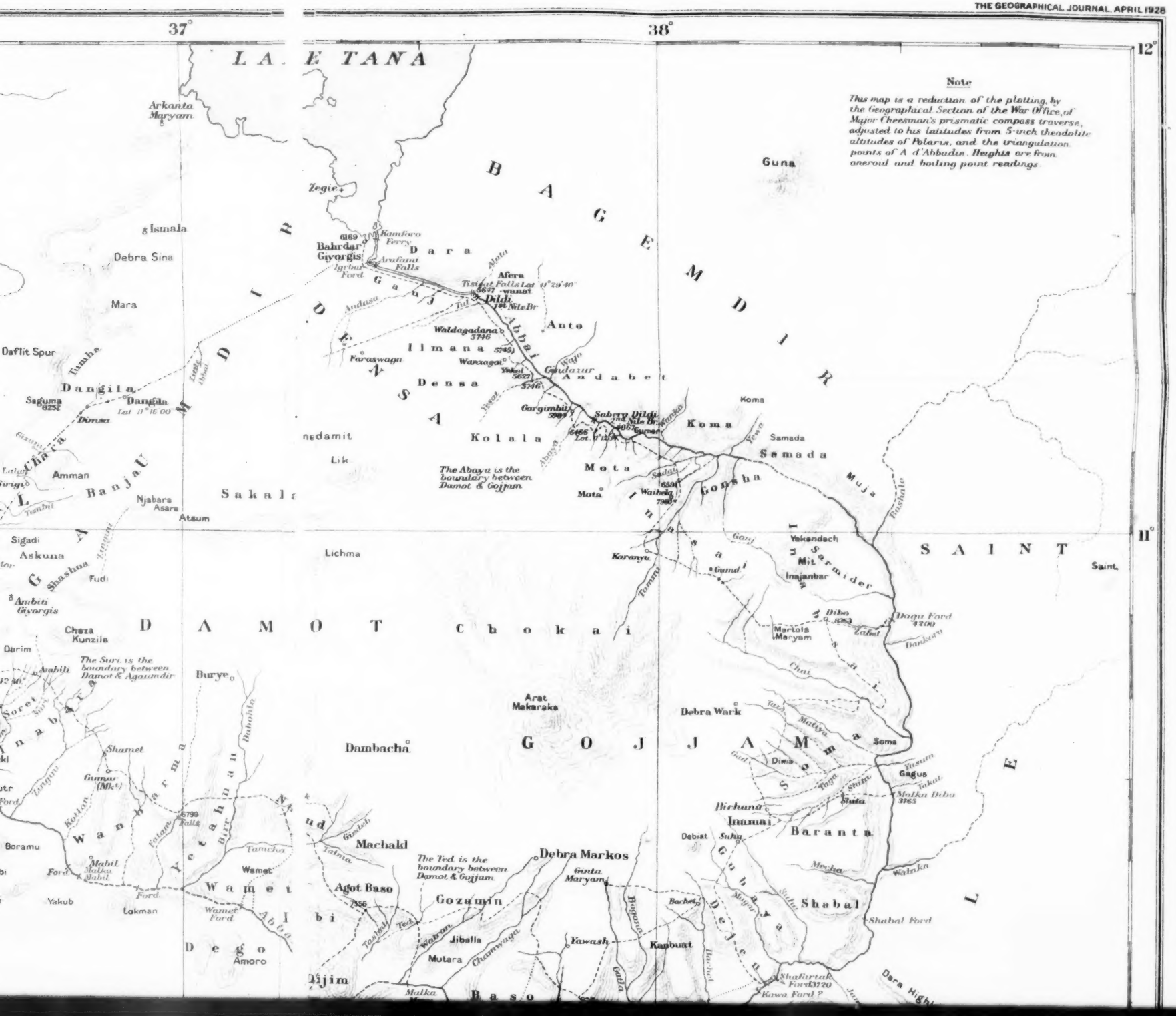
Published by the Royal Geographical Society

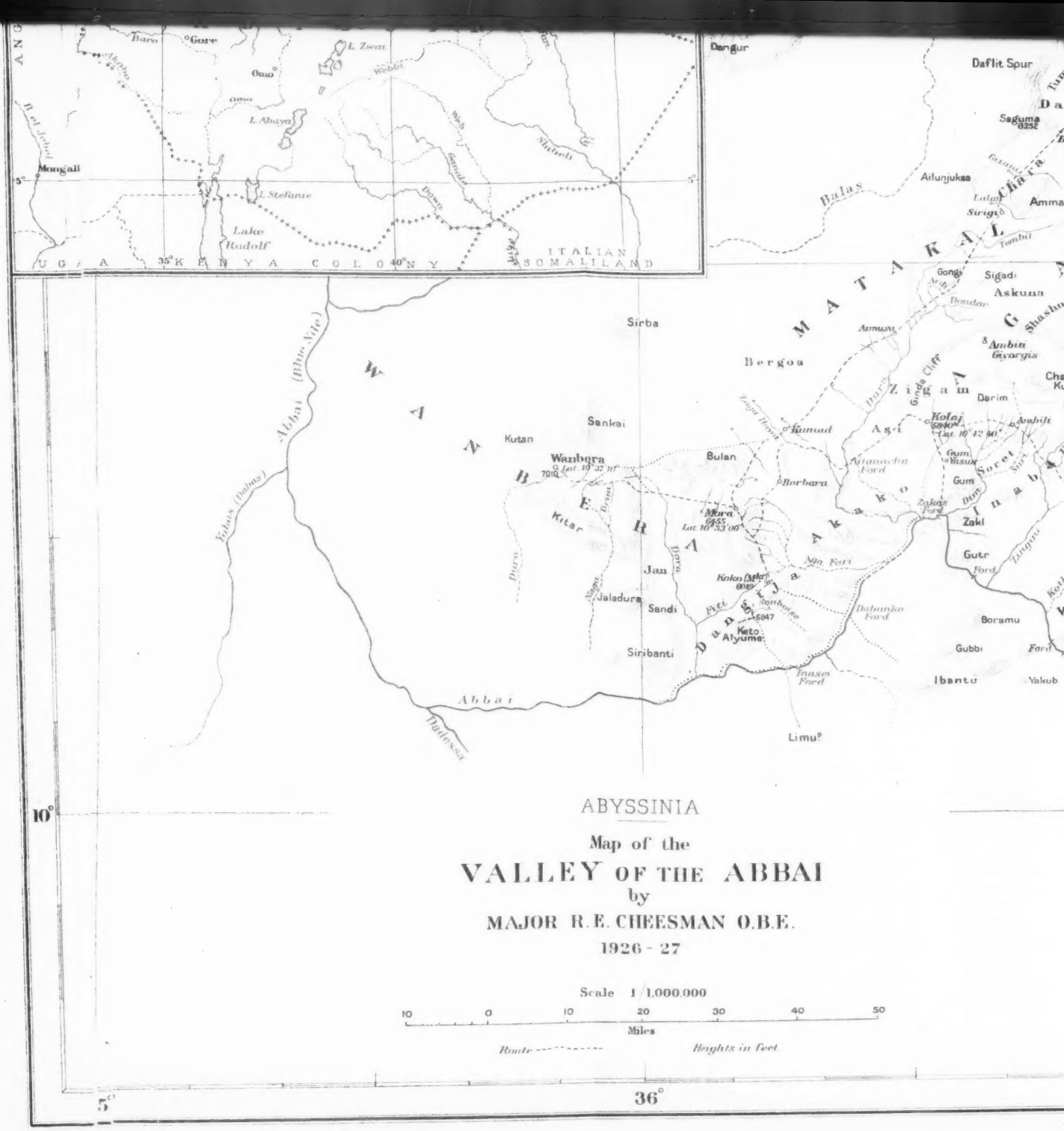

The Bifurcation
of the
RIO URARICUERA
at
ILHA MARACA
Scale 1:75000
Statute Miles
Cax. Purumanie (Urumamy)
Dense forest many palms
Emenuli-melu
Melau melu
Aranuan-melu
Cax. Jauspery
Cax. Formiga
Cax. Algodão
Dense forest
Authorities
Rio Branco, Trail from Boa Vista to
Boa Esperança, Rio Uraricuera, Rio
Parima, Rio Orinoco
Rio Takutu, Rio Sumuru, Rio Aracasa
Rio Mereyari, Rio Ventuari
Region between Rio Parime (Maroa) and
Rio Sumuru
East of Rio Branco at Boa Vista
Rio Orinoco
Rio Takutu, Rio Cotingo and west to
Ilha Maraca, Rio Aracasa, Rio Mereyari,
Rio Auari, Rio Matacuni
Rio Mayary, Rio Uraricaparu
Scale 1:20000000
Statute Miles
Sections N°1 & 11 published in the Geographical Journal Feb 1928
Ciudad Bolivar
Georgetown
BRITISH
GUIANA
DUTCH
GUIANA
Serra Paracaima
Sec III
Boa Vista
Pico F. de Lesseps
Vista Alegre
Sec II
Sec I
Manáos
Serra
do
Caracarahy
Ilha de Caracarahy
Caracarahy
Lat. 1°48'53" Long 61° 01' 30"
I. de Igarape Grande
Vista Alegre
Lat. 1°44' 07" N Long 61° 08' 32" W
Estrada do Caracarahy
Florencio
Uayumara
Maracana
Pete tepe
Forest
Pedras de Kulekudema
Cax. Bigalo
Cax. Yanadu
Cax. Kurupira
Cax. Pakaua
Cax. Sauba
Cax. Pacamão
Cax. Shilashkuri
Cax. Alga
Navigated but not surveyed
Parukoto
Forest
This map has been constr
of the Expedition, suppl
shown as insets on larger
been adjusted to astronom
with 6-inch theodolites by
Reeves' Prismatic Astrol
determinations Dutsheim
watches were used, with
Heights are barometric
21 metres above sea level.
The work of previous exp
list of Authorities.
Only those parts
in the Rio Parima
Distance by estimation.
Published by the Royal Geographical Society

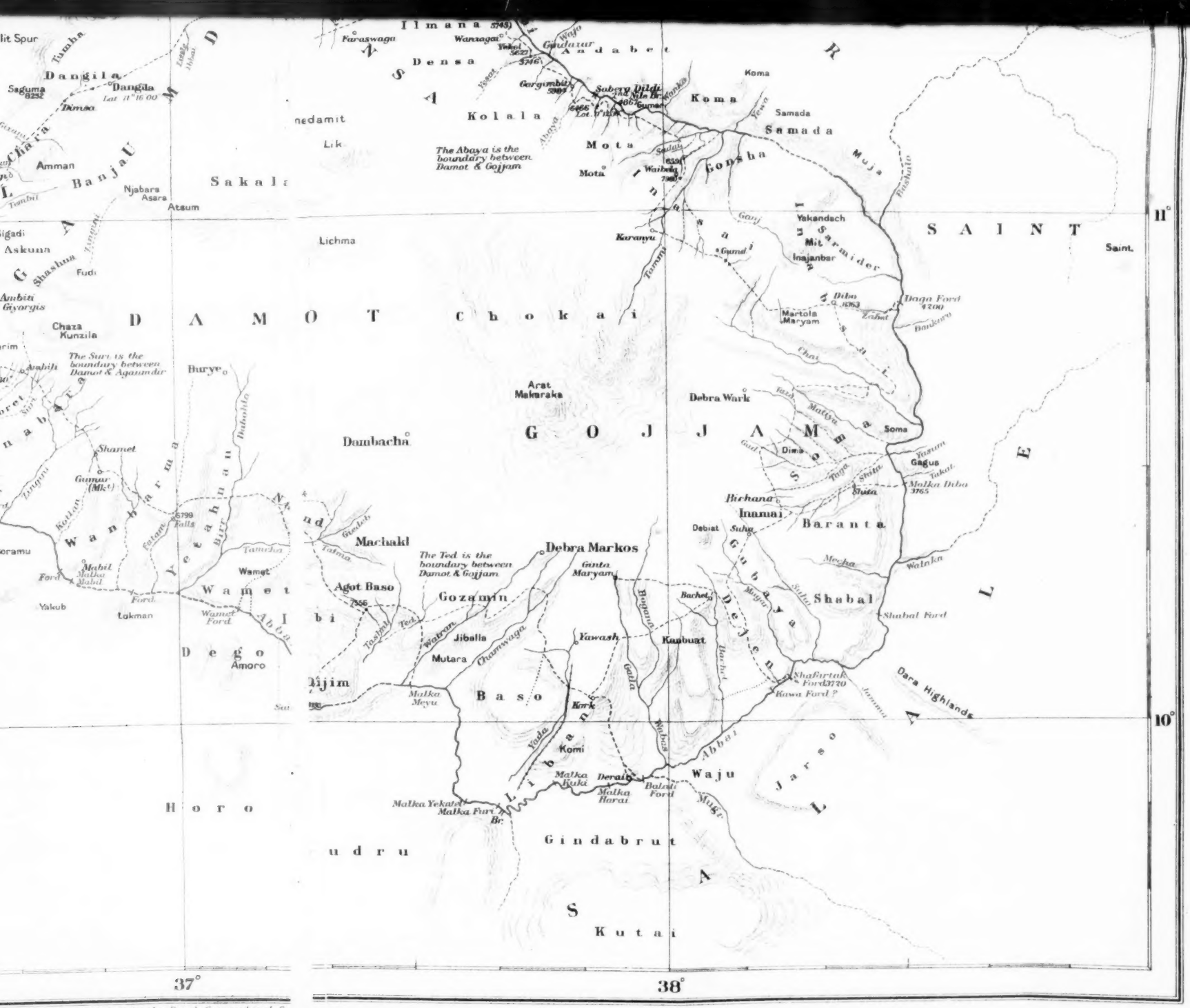


RIO BRANCO - URARICUERA - PARIMA
Hamilton Rice


KHARTOUM
Massawa
Kassala
ERITREA
RED SEA
ARABIA
Miles
0 50 100 150
El Damer
Kosti
ANGLO-EGYPTIAN SUDAN
Atbara
Kebbud
ADEN
GULF OF ADEN
Lake Tana
Area of Map
Roseires
Famaka
Faronge
Balas
Dangila
Abbai
French Somaliland
Jibuti
Dambacha
Berbera
Abbai
Rod
Malakal
BRITISH SOMALILAND
ADDIS ABABA
Harar
Sobat
Baro
Gore
Omo
L. Zwai
Wabbi
Ganale
L. Abaya
Shibeli
Mongalla
L. Stefanie
Lake Rudolf
UGANDA
KENYA COLONY
ITALIAN SOMALILAND
Balai
Dangur
Daflit Spur
Saguma
8252
Ailunjuksa
Balas
Sirigi
Tombi
Gongi
Sigadi
Askuna
Sirba
Bergoa
Ambin Giyorgis
Ginga Cliff
Darim
Kolai
Lat. 10° 42' 30"
Kumad
Asri
Sankai
Kutan
Wanbera
Lat. 10° 37' 10"
7010
Bulan
Barbara
Mara
6855
Lat. 10° 33' 00"
Kitar
Jan
Jaladura
Sandi
Siribanti
Keto Alyume
6847
Gum
Zaki
Gutr
Ford
Boramu
Gubbi
Ibantu
Abbai
Limu?
Tadessa


37°
38°
12°
11°
LAKE TANA
Note
This map is a reduction of the plotting, by the Geographical Section of the War Office, of Major Cheesman's prismatic compass traverse, adjusted to his latitudes from 5-inch theodolite altitudes of Polaris, and the triangulation points of A. d'Abbadie. Heights are from aneroid and boiling point readings.
The Abaya is the boundary between Damot & Gojjam.
The Suru is the boundary between Damot & Agaumdir
The Ted is the boundary between Damot & Gojjam
Arkanta Maryam
Zegie
Ismala
Debra Sina
Mara
Daflit Spur
Tumba
Dangila
Saguma
Dangila
Lat. 11° 16' 00"
Dimsa
Amman
Njabara
Asara
Atsum
Sigadi
Askuna
Fudi
Ambiti Giyorgis
Chaza Kunzila
Darim
Arabiji
Burye
Shamet
Gumar (Mkt.)
Boramu
Mabil Malka Mabil
Ford
Yakub
Lakman
Wamet
Wamet Ford
Amoro
Lichma
Lik
Sakala
Banjau
Guna
Bahrdar Giyorgis
Igrbat Ford
Kamfawa Ferry
Arafami Falls
Dara
Afera
Tisrat Falls
Lat. 11° 26' 40"
Dildi
Nile Br.
Waldagadana 5746
Ilmana
Faraswaga
Warcagai
Yakot 5622
Gandazur
Andabet
Densa
Kolala
Anto
Gargambita 5904
Sabery Dildi
2nd Nile Br.
Lat. 11° 12' 30"
Koma
Samada
Mota
Waibeka 7980
Gonsha
Yakendach
Mit
Inajanbar
Karanyu
Gumd
Dibo 6953
Daga Ford 6200
Martola Maryam
Debra Wark
Soma
Gagus
Malka Diba 3765
Birhana
Inanni
Baranta
Debiat
Suha
Shabal
Shabal Ford
Arat Makaraka
Dambacha
GOJJAM
Machakl
Debra Markos
Ginta Maryam
Agot Baso 7356
Gozamin
Jiballa
Mutara
Chamwaga
Yawash
Kanbuat
Shafirtak Ford 3720
Kawa Ford ?
Dara Highl
Baso
Dijim
Malka
DAMOT
Chokai
SAINT
Saint.
Note
This map is a reduction of the plotting, by the Geographical Section of the War Office, of Major Cheesman's prismatic compass traverse, adjusted to his latitudes from 5-inch theodolite altitudes of Polaris, and the triangulation points of A. d'Abbadie. Heights are from aneroid and boiling point readings.


Mangali
Lake Rudolf
L. Stefanie
Omo
L. Abaya
L. Zwai
Gore
Baro
Webbi
Daua
Ganale
Shabeli
Dangur
Daflit Spur
Saguma
Ailunjukaa
Balas
Amma
Sirigo
Tambi
Sigadi
Askuna
Ambin Giorgis
Bergoa
Sirba
Abbai (Blue Nile)
Yabus (Bahus)
Kutan
Sankai
Wanbora
Bulan
Barbara
Kumad
Asri
Darim
Kolaj
Gum
Zakl
Gutr
Jan
Jaladura
Sandi
Siribanti
Keto Alyume
Boramu
Gubbi
Ibantu
Yakub
Limu?
Abbai
Tadessa
Inasen Ford
Dabunka Ford
Ginda Cliff
Ford
WANBERA
KRITAR
DABUS
MATAKAL
ZIGAM
AKAKO
ITALIAN SOMALILAND
KENYA COLONY
UGANDA
ABYSSINIA
Map of the
VALLEY OF THE ABBAI
by
MAJOR R.E. CHEESMAN O.B.E.
1926 - 27
Scale 1/1,000,000
10 0 10 20 30 40 50
Miles
Route
Heights in feet
10°
5°
35°
40°
36°


Ilmana
Densa
Kolala
Andabet
Koma
Samada
Mota
Gonsha
Mija
Yakandach
Mit
Inajanbar
SAINT
Saint.
Lichma
Karanyu
Tarmya
Gumd
Dibo
Dagn Fiwi
Martola Maryam
Zabat
Bankuma
Chai
Arat Makaraka
Debra Wark
Dambacha
DAMOT
Chokai
GOJJAM
Soma
Dima
Gagus
Malka Diba
Birhana
Inamai
Baranta
Debiat
Suha
Machakl
Debra Markos
Ginta Maryam
Gozamin
Agot Baso
Jiballa
Mutara
Yawash
Kanbuat
Shabal
Shabal Ford
Mecha
Walaka
Bachet
Shafirtak Ford
Rawa Ford?
Dara Highlands
Baso
Kirk
Komi
Waju
Derai
Malka Buka
Malka Harai
Balati Ford
Malka Yekatet
Malka Furi
Gindabrut
Kutai
Horo
Amoro
Wamet
Wamet Ford
Yakub
Lokman
Mabil
Mabil Ford
Shamet
Gumar (Mkt)
Burye
Wanbarma
Jeeahana
Dabohla
Tamicha
Fatam
Falls
Kotlan
Tingam
Arabih
Nabara
Sakala
Banjau
Amman
Njabara
Asara
Atsum
Askuma
Ambiti Giyorgis
Chaza Kunzila
Fudi
Shashua
Tumba
Dangila
Dangila
Lat 11°16'00
Dimsa
Saguma
8252
Faraswaga
Warragai
Yekat
5627
5246
Gindurur
Waija
Gergambita
5203
Sabera Dildi
7348
Ala Bridge
4667
Gumara
6465
Lat 9°18'30
Yesera
Samada
Abaya
Sadura
6539
Waibela
7981
Ganj
Mija
Yashuta
Gumd
Dima
Tayum
Takat
Shita
Suta
Malka Diba
3765
Tayga
Gumd
Yazb
Matiya
Soma
Debiat
Suha
Mecha
Walaka
Bachet
Mugra
Sulu
Shabal
Shabal Ford
Dara Highlands
Jamma
Abbai
Jaeso
Mukt
Yada
Kubza
Gatta
Bugamu
Bachet
Tasfiha
Ted
Wabran
Chamwaga
Malka Meya
Malka Buka
Malka Harai
Malka Yekatet
Malka Furi
Br.
Derai
Balati Ford
Waju
Jaeso
Abbai

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